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GLOBAL NUCLEAR ENERGY PARTNERSHIP

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PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT

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PUBLIC SCOPING MEETING

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MONDAY,
MARCH 19, 2007

The public scoping meeting was held in the Hotel Washington, 1515 Pennsylvania Avenue, NW, Washington, D.C., at 1:00 p.m., Holmes Brown, moderator, presiding.

SPEAKER:

DR. PAUL LISOWSKIOffice of Nuclear Energy

PUBLIC COMMENTERS:

LISA STILESInternational Youth Nuclear Congress
MICHAEL STUARTNorth American Young Generation in Nuclear
RAYMOND DURANTEEagle Alliance
ELIZABETH McANDREW-BENAVIDES
BILL CASINO
REED JOHNSON
ROD ADAMS
STEVEN KRAFTNuclear Energy Institute

EDWIN LYMANUnion of Concerned Scientists
JIM RICCIOGreenpeace
CHRISTOPHER PAINENatural Resources Defense Council
TOM COCHRANNatural Resources Defense Council
MICHELE BOYDPublic Citizen
NICK ROTHNuclear Age Peace Foundation
LAURA PETERSONTaxpayers for Common Sense
BRIAN O'CONNELLNational Association of Regulatory Utility Commissioners
GEOFFREY SEASouthern Ohio Neighbors Group
KATHLEEN BOUTIS
SVEND SOEYLANDBellona Foundation
IVAN OELRICHFederation of American Scientists
DAVID BLEEU.S. Transport Council
DR. FRANK VON HIPPEL Princeton
DICK GARWIN
LEONOR TOMEROCenter for Arms Control
MARY OLSONNIRS

P R O C E E D I N G S

(12:05 p.m.)

MR. BROWN: Good afternoon and welcome to this Public Scoping meeting on the Programmatic Environmental Impact Statement for the Global Nuclear Energy Partnership. The development of an Environmental Impact Statement for this project by the Department of Energy's Office of Nuclear Energy is required by the National Environmental Policy Act, often called NEPA.

My name is Holmes Brown. I will serve as the facilitator for this afternoon's meeting. My responsibility is to make sure the meeting runs on schedule, and that everybody has an opportunity to speak. I'm not an employee of the Department of Energy, nor an advocate for any party or position.

At the registration table, you should have received a participant's packet.

If not, please raise your hand, and staff will deliver one to you. It contains important information on the following presentation, and it a convenient place to take notes during the briefing that will follow in a few minutes.

There are three purposes for today's meeting. First, to provide information on the content of the proposed Programmatic Environment Impact Statement, PEIS, and on the National Environmental Policy Act, which governs the process. The second purpose is to answer your questions on the proposed PEIS, and on NEPA. And, third, to receive and record your formal comments on the scope of the proposed PEIS.

The agenda for today's meeting reflects these purposes. We will begin with introductory remarks by video from Mr. Dennis Spurgeon, Deputy Assistant Secretary for Nuclear Energy. Next, we will hear a

presentation from Dr. Paul Lisowski regarding the proposed Programmatic Environment Impact Statement. Dr. Lisowski is the Deputy GNEP Program Manager.

To answers your questions, project staff will be available throughout the day at the display tables in back. They can discuss the proposed PEIS and NEPA, the contents of the printed materials available, and, also, the contents of Dr. Lisowski's presentation.

Following Dr. Lisowski's presentation, we will recess so that the public can pursue further questions with available staff.

Once we reconvene, a court reporter will be available to receive and record your comments and suggestions regarding the scope of the proposed PEIS. All your comments will be transcribed and made part of the permanent record.

We'll begin with a video presentation from Mr. Dennis Spurgeon.

(Whereupon, the proceedings went off the record at 12:08 p.m., and went back on the record at 12:14 p.m.)

MR. BROWN: I'm now pleased to introduce Dr. Paul Lisowski, Deputy GNEP Program Manager. He will discuss the background of the project, and the purpose and basic elements of the proposed PEIS.

DR. LISOWSKI: Thank you very much, Holmes. I'm very pleased to be here, and I'm delighted to see all of you here to join us in trying to understand more about the Global Nuclear Energy Partnership.

I'm going to talk just a few minutes about a few topics, a bit about nuclear power basics, about the Global Nuclear Energy Partnership, and I'm going to talk about, and as you think about this, I want you to think about the big G and the big P, and the little N, and the little E in the middle, because we have to talk both about the global partnership, and the local

or domestic partnership. I'm going to talk about the proposed facilities, a bit about NEPA, and then the PEIS process for the Global Nuclear Energy Partnership.

I think many of you are aware that nuclear energy provides 20 percent of the electricity in this country. These are nuclear power reactors that are producing this electricity without emitting greenhouse gases, and that's 70 percent of the emission free electricity generation in the nation.

Typically, a nuclear power plant operates as shown in this cartoon, in which the low enriched uranium fuel is fissioned by neutrons, liberating heat, which heats water, the water turns to steam, and steam drives the turbine. And, of course, that then drives the generator to produce electric power. This typically operates with low enriched uranium with about a 4 percent Uranium-235 content. And it's the Uranium-235, of course, which is producing

most of the energy in the reactor. After about 18 to 24 months, some of the fuel; in fact, Uranium-235, is mostly used up, and that fuel is then considered spent, and is replaced by fresh fuel.

Presently, the United States uses an open or once-through cycle for ultimate disposal of fuel; that is, we mine the fuel, turn it into fuel for the reactor, mine the uranium, turn the fuel into fuel for the reactor, put it through the reactor, and then store it. At present, it's mostly stored on the site of the reactor. The plan is to open a geological repository, which is Yucca Mountain, and to place that fuel in Yucca Mountain.

Another approach is a closed fuel cycle, or recycle, which is the Global Nuclear Energy Partnership proposal, in which we will use additional equipment to reduce the radiotoxicity, and to reduce the overall heat load on geological

repositories. And I'm going to talk about that next.

Of course, now we have to think about how this fits in the context of the world. Now we are expecting, overall, a big increase in electricity demand. By some estimates, it will double by 2030. We are looking at many ways to increase the energy supply in the United States, and this is the same, of course, that other nations are doing. It's important to push all sources of energy in the country.

Internationally, this expansion taking place is shown here in a recent magazine article, which is shown, the internet reference is here. There are 435 reactors in use worldwide, with 28 under construction, and 222 planned. And one can imagine that by the end of the century, there will be, perhaps, 1,000 reactors in operation worldwide.

The question is how will we

impact this expansion of nuclear power worldwide in a way that allows us to control the proliferation aspects associated with this expansion of nuclear power? The big G and the big P of GNEP involve interacting globally to arrange a partnership to manage the expansion, working with other fuel cycle nations, Russia, France, Japan, and China. Those are the nations that are forming up in an international, if you will, coalition which can both determine how proliferation goes in the world. And these are nations both with the will and the means to participate. The United States, which is not in the process of recycling or trying to form a closed fuel cycle, wants to, in fact, lead this partnership, but we do not really have the means to participate as we now stand without a domestic program in this area. And so, you might imagine that it's very difficult to join into this global partnership and create a regime in which the

United States can influence the direction that the world goes in non-proliferation, unless we're part of that activity.

There are repository benefits, and much has been made about the important repository benefits that GNEP can bring forward. But, in fact, the idea of the repository in some sense is secondary, because of the great international need for us to be able to be part of the global expansion of nuclear power, and influence where we're going with the non-proliferation policy of the world.

So the international initiatives that GNEP is involved in have to do with establishing reliable supply arrangements among nations so that countries interested in putting in place nuclear power do not have to incur the expense or complication of enrichment, uranium enrichment, or reprocessing technologies.

We will be demonstrating

proliferation-resistant reactors, working with industry to deploy these in a way that is appropriate for the power grids of developing economies. Not every economy can take a very large power reactor, and so it's necessary to develop ones that are appropriate for the grid. And we'll be working with the IAEA to enhance nuclear safeguards to be able to monitor more effectively the materials and control the materials coming into the global economy.

Of course, you're here to hear about the domestic efforts. Within the Department, and within the United States nuclear energy strategy, expanding nuclear power is, perhaps, the highest and most important goal of the Office of Nuclear Energy. And that's done through a program that's not within GNEP, but through Nuclear Power 2010.

The purposes of GNEP are to deploy the advance technologies for

recycling spent nuclear fuel that do not separate Plutonium, and to develop advanced reactors, these are called fast reactors, that consume the transuranic elements that Assistant Secretary Spurgeon talked about, that have been removed from the recycled spent fuel. So we're evaluating three fuel cycle facilities overall to support GNEP, a nuclear fuel recycling center, which is, perhaps, -- it is, perhaps, the most important aspect of GNEP, because it allows us to separate spent fuel into the reusable Uranium, and transuranic elements. And those transuranics are Neptunium, Plutonium, Americium, and Curium, and the things that are not reusable without separating pure Plutonium.

This recycling center will then fabricate a fuel from the transuranics to put into the fast reactor, or the recycling reactor, and then in the recycling reactor, of course, then you can destroy the

transuranics while generating electricity.

The PEIS is analyzing various technologies and alternatives with various spent fuel outputs, from 1,000 to 3,000 metric tons annually. The advanced recycling reactor, of course, is the facility that will destroy the transuranics. Our proposed technology is a sodium cooled fast reactor, and, again, it's analyzing alternative power ratings from 250 to 2,000 megawatts thermal. These two facilities could be privately owned and operated, potentially with government-supplied incentives, or with other means of involvement that we have not yet determined in the program.

The final facility is an advanced fuel cycle research facility. This would be built and operated at a DOE site, and would support research and development related to advance separation technologies, production of fast reactor transmutation fuel, and

long-term research and development.

These three facilities go together in a cartoon that looks like this, which sort of explains the overall flow in which spent nuclear fuel would be stored and processed in the nuclear fuel recycling center. In the initial implementation of GNEP, separated transuranics and Uranium would go to the advanced fuel cycle facility, where the transmutation fuel would be prepared and placed in a sodium fast reactor to demonstrate destruction and qualification of the fuel. And then later, the fuel cycling center would provide the fuel, so that this particular facility would continue operating to generate electricity.

In order to fully implement the Global Nuclear Energy Partnership system, this would be the first of a kind fast reactor for generating electricity in the country. And additional reactors, perhaps as many as one-third of the overall

whitewater fleet would have to eventually be sodium fast reactors.

Within the NEPA process now, we are in the process of considering various environmental impacts for the proposed actions. The whole idea, of course, is to get input from you, the public. And we're very interested in your comments, and will be taking careful note of what you have to say. This process will proceed through a record of decision which we made by the Secretary of Energy of how to proceed in the summer of 2008. Of course, this process is required for any major federal action that could impact the quality of the environment. And this particular program is a Programmatic Environment Impact Statement being prepared for this broad program, which has yet to be fully determined.

The purpose of this PEIS is to look at alternatives, reasonable alternatives that encourage the expansion of

nuclear energy production, reduce proliferation risks, and reduce the volume, thermal output and radiotoxicity of spent fuel before disposal at a geologic repository.

I must say that this program in no way supplants Yucca Mountain, and you must realize that the Yucca Mountain program and a geologic repository is an important component of the Global Nuclear Energy Partnership program domestic activities.

The alternatives that we're discussing are Alternative One, the no action, which is continuing the once-through fuel cycle, continuing the status quo in which we store spent fuel until it can go into a geological repository. And, finally, continuing nuclear fuel cycle research and development.

The second alternative is GNEP, which is a broad implementation of this advanced closed fuel cycle that can include

one or more nuclear fuel cycling centers, and one or more advanced recycling reactors. We are doing a project specific analysis to look at the construction and operation of any or all of these three fuel cycle facilities.

Alternatives for these fuel cycle facilities are listed in this slide. You can see that there are both Department of Energy sites, and non-Department of Energy sites. And we are in the process of using a screening process to determine which ones are reasonable alternatives.

If we look at this viewgraph, you see the proposed facility location. Some of the locations are appropriate for the advanced fuel cycle research facility, some of them are appropriate for the nuclear, and have expressed interest in a nuclear fuel recycling center, or an advanced recycling center, or, in fact, both.

The big G and the big P are the

international initiatives, allow us to work with partner nations to develop this fuel services program, and to promote proliferation-resistant reactors appropriate to the needs of developing countries. In this Programmatic Environment Impact Statement, we are not proposing any specific action with regard to the international activities. There will be only a general and qualitative analysis of the potential impacts on the United States or global commons that might be involved in these activities.

The kinds of environmental issues that GNEP is considering for the program are things like land use, air quality, waste management, transportation, and the kinds of things that we're typically used to dealing with in environmental impact statements.

The Department of Energy will be making a record of decision. The proposed date is June of 2008, to determine whether

to proceed with the construction and operation of these technologies and what are the qualified locations. The Department will make its decision based on the PEIS in put, as well as cost, technical, and policy information.

So the question is how can you help? Well, first of all, you can provide comments to help us analyze the reasonable alternatives, and to identify any significant environmental issues that need to be examined in the PEIS. I, personally, have been to a number of these meetings, and I must say that input from the public is very valuable to the Department of Energy. There have been very interesting, and very introspective ideas that have been put forward for the Programmatic Environment Impact Statement consideration. I'm sure that will be the case today.

Continue to be informed. Obviously, you can go to our website and

read about the program, and sign up for distribution of the draft PEIS, and continue to attend public meetings, because this process is not over yet. So this is how you provide your comments. Of course, we have a court reporter to take oral and written comments at this meeting. You can send these by mail to my deputy, Tim Frazier, at the Department of Energy by email to this address, by telephone, or by fax. The comment period is going to end on April 4th, 2007. Thank you.

MR. BROWN: Thank you. At this time, we're going to take a break to allow you to browse the exhibits at the back of the room and ask questions of staff, who will be available at the various posts or stations. I will make an announcement when we're about to resume the formal course of the meeting to begin taking oral comment. If you would like to provide an oral comment and have not yet signed up to speak, you may

do so at the back of the room, so we will now take a brief break. Thank you.

(Whereupon, the proceedings went off the record at 1:30 p.m., and went back on the record at 1:49 p.m.)

MR. BROWN: It's now time to receive your formal comments on the scope of the proposed PEIS. This is your opportunity to let the Department of Energy know what you would like to see addressed in the draft document. The court reporter will transcribe your statements. Let me run through a few brief ground rules for formal comment.

Please step up to the microphone over there when your name is called, introduce yourself providing an organizational affiliation, where appropriate. If you have a written version of your statement, please provide a copy to the court reporter when you're finished. Also, if you have additional documents that

you would like to have made part of the record, but don't intend to present verbally, you may leave those with your comments. Those will be marked, and also made part of the formal record.

I will call two names at a time. The first of the speaker, and the second of the person who will follow. In view of the number of folks who have signed up to speak today, please confine your public statement to five minutes. If you have a longer statement, try and summarize. Again, you can turn that into the court reporter.

Public comments, however they're received, whether they're by email, printed, or presented verbally all carry equal weight when the analysis for the draft document is being done, so I will ask you to restrict your comments to five minutes. I will let you know when you have a minute remaining in your statement.

Mr. Richard Black, who is

Associate Deputy Assistant Secretary, Office of Nuclear Energy, will be serving as the Hearing Officer for the public comment. He will not be responding to any questions or comments during that period.

So that by way of introduction, let me call the first person who signed up to speak. Lisa Stiles is first, and she will be followed by Michael Stuart.

MS. STILES: Good afternoon. My name is Lisa Stiles Shell and I'm here representing the International Youth Nuclear Congress. I support the GNEP initiative, and this PEIS process that will ensure that potential environmental impacts are properly considered.

I worked for 10 years as a nuclear engineer with degrees from the University of Missouri-Rolla, and the Massachusetts Institute of Technology. When I first chose nuclear engineering as a career path, I was fascinated by the science

and the technology, and inspired by the opportunity to contribute to an industry that benefits our society, our health, our economy, and our environment.

While the many challenging years of school took the technical mystery away, I remained excited about the benefits of nuclear science and technology. Like many of you, the one issue that concerned me the most was nuclear waste, so as I progressed in my education, I began to concentrate more on that issue.

My career has moved in different directions recently, but nearly all of my 11 years working in the industry has been focused on spent fuel management. So from a technical perspective, I am pleased to see our country beginning to work again on closing the nuclear fuel cycle.

As electricity demand increases at the same time that we ever more concerned about environmental stewardship and national

security, it just makes sense that we work to recycle used nuclear fuel in order to more efficiently use the energy remaining within, and to reduce the volume and toxicity of high level waste.

I am also the President of the International Youth Nuclear Congress. IYNC was formed in 1998, and has representatives in over 50 countries. Its goals are to develop new approaches to communicate the benefits of nuclear power as part of a balanced energy mix, to promote peaceful use of nuclear science and technology, and to transfer knowledge from the current generation of experts to the next generation.

At our bi-annual congress last year in Stockholm, IYNC released its declaration on nuclear science and technology. This declaration named many ways that nuclear science and technology benefit our society, and it called on world

leaders to listen to the voice of young nuclear professionals within their countries to acknowledge the vital contribution made by the nuclear industry to reducing carbon dioxide emissions, and helping to meet the climate change challenge, and to recognize that nuclear science and technology will help assist meeting the sustainable development objectives of improving social, environmental, and economic factors.

Well, at this time, IYNC withholds comment on the global political ramifications. IYNC supports the development of technologies contained within the scope of GNEP that better utilize our natural resources, proliferation-resistant technology to recycle fuel, and reduce the volume and toxicity of high level waste.

However, I'll take off my IYNC hat now, and speak about my personal views for a moment. The nuclear power genie is out of the bottle. The core technologies

are just not exotic any more, and nations that want to build a program can gain the knowledge and skills to do it with or without our participation or approval. Standing behind our military arsenal, and a policy of we won't recycle fuel because we don't want others to recycle fuel obviously hasn't worked.

To ensure that nuclear technology is used for peaceful means, we must continue to support a rigorous program of international controls and inspections, and we must retain our spot in worldwide policy making. Unfortunately, though, we've lost our undisputed lead in the development of nuclear technology. Other nations have been recycling fuel for decades, and have improved the technology that was originally developed here.

Other nations are also building the most advanced nuclear power plants in the world, and we're not yet.

We need to regain our technical edge if we want to remain the leader in shaping global nuclear policy. GNEP is an initiative that will help us get there. Thank you.

MR. BROWN: Thank you. Michael Stuart, and Raymond Durante will be next.

MR. STUART: Hello, you all. I'm Michael Stuart, and I'm not being paid by anybody to be here. I drove up here from Richmond, because I believe in what I'm saying. So with that said, I also represent an organization called the North American Young Generation in Nuclear, or NAYGN. It's an organization of about 3,000 young people across North America, and they are dedicating their lives to promoting safe, and clean, and peaceful use of nuclear technology in North America.

Nuclear energy, as we saw earlier, now provides about 70 percent of the emission-free energy in this country.

If we really care about protecting the environment, and not just paying lip service to it, then we must wean ourselves off of fossil fuels, we must ensure that our energy is secure and independent, and we must provide our energy cleanly. In order to do this, we have to have a diverse portfolio, which includes renewables, conservation, and nuclear power.

Many people will stand in opposition to nuclear energy because of its so-called waste. What they don't realize is that this so-called waste is not waste at all. Over 95 percent of the spent nuclear fuel can be recycled into fuel for advanced nuclear reactors, which will, in turn, render this waste harmless.

To continue with our current policy of storing nuclear fuel indefinitely, or burying it in the ground would be a true waste. Nuclear energy is a product of American ingenuity. We pioneered it, but if

we do not take the lead in this technology, then it's not going to stop the rest of the world from passing us by.

I'm just one of thousands of young people that are energetic nuclear professionals, and we're dedicated to making sure that we have a bright, clean, and safe future for our country and for the world. Thanks.

MR. BROWN: Thank you. Raymond Durante, then Elizabeth McAndrew-Benavides will follow.

MR. DURANTE: Hi, I'm Raymond Durante. I apologize for my graveling voice, but I have some kind of an allergy affecting me, but I've been in the nuclear business for 56 years, and I've done a lot of different things. And I'm concerned about what's going on with regard to this GNEP program.

We all agree that we're going to be needing electricity forever, and

electricity has tracked the Gross National Product and gone upwards. We always find new uses for it, and we can't have social progress or industrial development without it.

As far back as the 1950s, we worried about the fact that fossil fuels might be in short supply, so we needed an alternative, and that was one of the drives to bring nuclear power into existence. Now we're looking at even more reasons why we need -- why we can't use fossil fuels. We have 104 or 103 nuclear power plants operating, and by all measures, they've been very, very successful. I don't think people really understand how successful they've been. And now we're looking at how we're going to expand it. So far, there have been two real strong objections to our nuclear program, and that's the waste problem, and proliferation problem. And the Department of Energy, with their GNEP program, and the

rest of the world looking at this, thinks that this might be a solution.

Now I carefully read a lot of the objections that people have to this, and they're all very scientific. They're all very technical. They have to do with Plutonium and radiation, and so forth, and all I'm saying is we've got to be very, very careful that we don't make the same mistake we made so many times, and that is to require that you have all the answers before you're allowed to proceed. If we don't proceed with this program, the rest of the world will. And we've already depleted our nuclear industry drastically, where there were six or seven top flight companies to provide nuclear equipment, now we're down to only one American company. And if we don't look at this program carefully, I really believe that we're going to have a lot of problems in the future in providing electricity that my eight grandchildren will

need for their future. Thank you.

MR. BROWN: Thank you. Elizabeth. She will be followed by Bill Casino.

MS. McANDREW-BENAVIDES: My name is Elizabeth McAndrew-Benavides, and I'm a resident of the State of Maryland, and I am a nuclear engineer. As a member of North American Young Generation in Nuclear, I'd like to thank all of you who are in attendance today for contributing to this important public process, which exemplifies the best of our democracy.

I worked for five years in a nuclear power plant, and my husband and I bought a house five miles from that same facility. I have the honor of working with people every day who make safety of the public their first priority, not just because their families are a member of that public, but because they want to see that the future families and the public are all

safe.

By safety operating the current units of nuclear power plants in this country, and ensuring our used fuel is safely stored in interim storage facilities, I know that we have done our part helping to safeguard the future.

The reason why I became a nuclear engineer was because I wanted to dedicate my life to something that could help benefit mankind. Nuclear energy is a technology that does just that. It is a clean, safe, reliable, and cost-effective means of meeting our energy needs, while addressing the issue of global climate change.

Being that I am a member and a young person, I have been raised with the concept that recycling materials to save natural resources should be a part of our everyday endeavor. It is now time to implement that next step of our natural resource management by initiating the

advanced fuel recycling capabilities envisioned in the GNEP concept. This will enable us to use precious natural resources as efficiently as possible, and reduce technological challenges associated with permanent waste repository management.

Nuclear energy as a part of the balanced energy mix helps to ensure our energy security. Coupled with developments in renewable energy, and efforts to improve conservation, the GNEP program provides an opportunity to accept responsibility for ensuring the availability of abundant energy, not only for our generation, but for our children, and our children's children, and their children.

I look forward to continuing and participating in the public process for GNEP Programmatic Environment Impact Statements, and developing in the GNEP program, and I hope that it moves forward to ensure that these facilities live up to their GNEP

vision to being safe, secure, and a responsible manner so that it becomes a great asset to us all. Thank you.

MR. BROWN: Thank you. Bill Casino will be followed by Reed Johnson.

MR. CASINO: Good afternoon. My name is Bill Casino. I am a nuclear engineer. I live and work in Lynchburg, Virginia. I'm a proud and active member of the American Nuclear Society and the North American Young Generation in Nuclear. I would like to go on record today supporting the Global Nuclear Energy Partnership initiative, and I want to just express why I think it's a sound and sensible way to move forward.

I've been thinking about what I wanted to say in this regard, and I think probably why I support this concept is very similar to the reason why I went into the nuclear engineering field in the first place. I could have done anything to make a

living, but I chose to go this way. You've heard a few comments already from some others. I wanted my work to have a positive impact on my society. I wanted to do something meaningful and constructive, respectful of the environment and the planet on which we live. I believe the GNEP proposals in its various forms will move us in that direction. And I remember back when I was a student studying, learning about reactors, and how we manage our fuel, and all that, and I often asked my professors, "Why are we just taking the fuel and burying it in the ground?" And the answer was always, "Well, we don't have to do that. It's just -- it's a matter of current public policy that we do that sort of thing."

I've come to discover, questioning from an engineering perspective, I'm an engineer geek, so the answer is right there on a piece of paper. You can just figure it out, but we don't always do what

the piece of paper says we should do, because the best answer that we choose is not always motivated by what makes engineering sense. More often than not, our decisions and our policies are driven by political reasoning, and that sort of thing. So I wanted to go on record saying that I would like for those who question this technological approach, or even nuclear energy, in general, to please inform yourself. Gather some information before you make a decision, and form a decision, even if you do choose not to support this approach or our technology, at least if you make this decision in an informed manner, I can respect that very much.

Everybody has heard the saying, that the longest trip starts with the first step. This is probably -- in my opinion, it's not the first step, it's probably the fifth or sixth step. I've met several senior nuclear engineers who have been

working in this field for a considerable amount of time. The vision has always been, from an engineering perspective, that we would recycle our fuels. It's the responsible thing to do. It just hasn't happened yet, as simply a matter of public policy.

What's stopping us from moving forward on this is not technology. I know an awful lot of very smart, and very capable engineers who I feel very confident that we could do this. We can overcome the technical obstacles. It's a question of can we overcome the political and public perception obstacles. So please make an informed decision, get some answers from some neutral sources, if you can, before taking a position.

Obviously, I'm a little biased, but I support this concept, and looking forward to working with it, and being involved in it in the future. Thank you.

MR. BROWN: Thanks. Reed Johnson, Rod Adams will be after Reed.

MR. JOHNSON: Good afternoon, ladies and gentlemen. I'm Reed Johnson. I'm a private citizen, formerly a member of the now departed Nuclear Engineering Department of the University of Virginia, and they mirror our basketball game in that respect.

I would like to say that I am very much in favor of the GNEP program, particularly the global part. If the United States does not take a leadership role, and work towards an international development of nuclear power, not only for the developed nations of the world, but for the nations which will be hardest hit by the affects of global warming and climate change, then I think our planet is in deep trouble.

The challenges that we face with respect to proliferation, and nuclear terrorism are things that can be solved if

the nations of the world, with leadership, hopefully, from the United States, put their minds to it. They are amenable to technological solution, and political solution; whereas, the problems associated with continued release of carbon dioxide from fossil fuel are not manageable. So I applaud the Department of Energy for this program. I think the environmental impact of not proceeding with GNEP are far worse than anything that would happen if we do proceed with it. Thank you.

MR. BROWN: Thank you. Rod Adams, and Steve Kraft will be next.

MR. ADAMS: My name is Rod Adams, and I'm the founder of Adams Atomic Engines. We started in 1993 with the idea of producing small, deployable nuclear-heated engines that could provide power to dispersed places around the world, and have been working in that direction for a long time.

I started as a submarine officer and learned that a closed environment can have an operating nuclear power plant inside of it. We all live on a closed environment, and we need to ensure for the health of that environment that we do the best we can to operate it in a manner that we understand that is closed. And we need to use the fuels, use the materials as efficiently and effectively as possible.

When you have something that has two million times the energy value of coal, that does not release any gases at all, not just global warming gases, but we don't release any gases that contribute to acid rain, we don't releases any gases that contribute to nitrogen pollution of the Chesapeake Bay, we do not release any fly ash that contributes to people who have asthma, and have allergies, and respiratory problems.

I'm very much in favor of the

idea of reducing, reusing, and recycling our nuclear fuel. And I've been one of the first people, I believe you can go on the web and find an article that I wrote in 1996, that said that there is no such thing as spent nuclear fuel. We have used nuclear fuel, and it's only very lightly used. And we need to reduce, reuse, and recycle it.

The one thing I would recommend as part of my public statement is I would like the Department of Energy to consider expanding the scope of the reactors that you're considering for the advanced fuel cycle. Sodium cooled fast reactors are only one option for burning actinides and transuranics, and I would like for you to make sure you open the scope to include such things as gas cooled reactors. Thank you.

MR. BROWN: Thank you. Steve Kraft, and Steve will be followed by Edwin Lyman.

MR. KRAFT: Good afternoon.

Thanks, Holmes, appreciate that. On behalf of the Nuclear Energy Institute, and nuclear industry, I appreciate DOE holding this hearing, and holding hearings around the country as a true measure. I particularly appreciated one of the previous speakers talking about this is democracy at its best, which I fully agree.

Expanding nuclear energy to meet the nation's future energy needs is extraordinarily important. Nuclear energy is the only reliable secure large-scale form of energy generation that does not produce greenhouse gases, and a lot of speakers have said that today, so I'm not going to go through those details.

The purpose of this hearing, gathering information on the GNEP Programmatic EIS is extraordinarily important, and everyone has been focusing, and I will also focus on the technology development part, but everyone needs to keep

in mind that there is a very large non-proliferation part of this program, as well, involving use of nuclear energy around the world, and making sure that nuclear materials are kept under control, et cetera, which is an aspect we fully endorse, as well, but our interest today, I think, is to talk about the advanced technologies aspect of this program.

The PEIS needs to be a very broad document, have a lot of flexibility into it, and perhaps accommodate phased approaches to developing this technology. I think the previous speaker made a very good point about the need to look at other kinds of technologies. We also suggest that EIS be broad enough to accommodate other types of reactors that may fall under the general term recycling reactors, whether they're fast-spectrum reactors, thermal-spectrum reactors, et cetera, or whatever the coolant might be, gas, sodium, whatever might be,

should be looked at.

The industry strongly supports a three-pronged approach to integrated used fuel management. The first being the development of the permanent disposal facility. It has been said over and time again at this meeting, and other meetings, that Yucca Mountain will be needed regardless of the fuel cycle that is ultimately developed, and we're pleased to hear that being repeated all the time. Research development demonstrations to close out the nuclear fuel cycle, close the fuel cycle, as everyone has been discussing, and to add to it consolidated federal used fuel storage until permanent disposable and recycling are available. The last two are the subject of the EIS we're discussing.

The potential fuel supply benefits of the advanced fuel cycle facilities described in the notes of interest are substantial, and I'm not going

to go through the details, but those of us who work in fuel supply, and the use of recycled materials is extraordinarily important for the future of nuclear energy, and future of energy production in this country, and worldwide. The PEIS needs to preserve the flexibility, to make adjustments in how those materials will be used as it goes forward.

The potential waste management benefits are also substantial. A number of advanced fuel cycle strategies that we've looked at can achieve significant and quantifiable reductions in radioactivity, decay heat, and the volume of the waste that would be generated. However, DOE in developing the PEIS needs to make sure that they fully understand and explore all those options, all the volumes of waste that will be involved, et cetera, which we think are an important aspect of the EIS. Again, it goes to our theme of flexibility and

options.

We recommend that the new commercial scale of advanced fuel cycle facilities be developed under NRC regulations. DOE will have certain facilities on DOE sites that because of their location, and the way DOE will develop them, may not generally fall under NRC, the private facilities would. Even in that case, they need to completely coordinate with the Nuclear Regulatory Commission and make sure requirements are understood back and forth.

We applaud DOE's intent as stated in the Notice of Inquiry to evaluate storage of spent fuel prior to recycling. This is, of course, consistent with our third point of our policy. In the event that such an interest is present in the volunteer communities who are interested in these facilities, it is possible that one volunteer or more might be interested in

taking storage far earlier than the facility might be available that would process the material, for whatever aspect they might want to do that for. And the way we read the notice, there is no limit on the timing as to when these facilities would come about, and so we think that also needs to be explored as an option within the EIS.

MR. BROWN: Mr. Kraft, you've got a minute left.

MR. KRAFT: Yes, sir. Thank you. Industry endorses the concept of private ownership of these facilities; however, inherently, development of these technologies, DOE should continue a broad range of scenarios of ownership, private, public, partnerships, et cetera, come to mind. And related to that is this issue of the use of mixed oxide fuel. Right now, the way we read the EIS, the PEIS document, it says that it would be to supply fuel for advanced fast reactor. If there is no

provision in the EIS to develop and utilize MOX recycle and thermal reactor, the current reactors we have now, you may be taking out of the hands of the business partners you want to have in the private sector a market they could utilize to run the facilities until they're ready to develop the fuel that DOE needs.

With that, I think I've covered all of our comments, and just to say thanks again to you, Holmes, and DOE, and we will be submitting formal comments for the record.

MR. BROWN: Thanks. Okay. Edwin Lyman, and Jim Riccio will follow.

DR. LYMAN: Thank you. My name is Dr. Edwin Lyman. I am a Senior Staff Scientist with the Union of Concerned Scientists. I hold a Ph.D. in theoretic physics from Cornell University, as a post doctoral associate at Princeton for three years. I've been working in the field

associated with nuclear energy and nuclear non-proliferation for almost 15 years now.

The Union of Concerned Scientists opposes in the strongest terms the Global Nuclear Energy Partnership. GNEP is an ill-advised, thoughtlessly conceived, and poorly defined program. GNEP threatens to increase the likelihood of nuclear terrorist attacks, and undermine the nuclear non-proliferation regime, while wasting tens, perhaps even hundreds of billions of dollars, while utterly failing to achieve its stated goals with regard to improving the management of nuclear waste, or reducing the threat of nuclear non-proliferation.

Instead of devoting its attention to cleaning up the Cold War nuclear waste legacy at its sites, DOE is planning to divert resources and focus on a program that they will dump vast quantities of additional nuclear waste in a whole variety of additional forms that are hard to handle,

into an inventory that DOE has already proved unable to safely stabilize.

And that by way of introduction, let me just explain the bottom line, why GNEP will increase the threat of nuclear proliferation. That is simply because Plutonium, when it is in spent fuel as discharged from a nuclear reactor maintains a level of self-protection, which provides substantial determinants that in addition, the items of spent fuel is countable and relatively easy to safeguard. You lose both those properties when you process spent fuel in a reprocessing plant, and fuel fabrication plants, and in storage facilities where Plutonium is stored.

The so-called proliferation resistance features associated with some of the technologies that are being analyzed in this program are old technologies. They were thoroughly vetted in the 1970s and regarded not to be effective then, and

they're certainly not effective now when terrorist threat has only increased over the last several decades.

Enough grandstanding, but this is a scoping hearing, so I would like to discuss some of the scoping issues that we would like to see addressed in the Programmatic Environment Impact assessment. First of all, we strongly endorse a non-proliferation assessment to be conducted in the context of the PEIS. There is ample precedent for non-proliferation assessments being conducted with regard to DOE major actions, even if there is no international component of the action, which, as we heard earlier, is the case for this PEIS.

The non-proliferation is especially acute given the fact that the first GNEP separation facilities are going to be essentially Purex facilities, separating pure Plutonium to be used and conventional fast reactor fuel. And no

matter what the technical merits of the so-called proliferation-resistant technologies are, it's clear that these first facilities will be conventional processing plants; and, therefore, have all the proliferation and nuclear terrorism risks associated with such facilities.

The Notice of Intent says that sabotage impacts will be studied. I would argue that the terrorism impacts must also consider the impacts of nuclear explosions associated with the theft of special nuclear materials in an AGM facility. And there is, again, a precedent for that, and that in the context of GESMA hearings in the 1970s, this document did assess the potential for environmental impacts of nuclear explosions associated with the diversion and theft of Plutonium from the fuel fabrication facility, so there is ample precedent for that.

With regard to the environmental

impacts, the incremental impacts associated with using Plutonium and other highly radiotoxic actinides in fuels in advanced reactors must also be assessed. To give only one example, if you're talking about a sodium cooled fast reactor, you must evaluate the so-called Hypothetical Core Disassembly Accident, or HCDA. And because there is so little technical information on the potential progress of such an event, the analysis is going to have to be very conservative given the lack of information on the progress of such an accident that exists to-date.

Another aspect that needs to be considered is the potential long-term interim storage of nuclear waste in above-ground facilities that is contemplated by GNEP to obtain the benefits of a repository that its promoters are touting. Cesium and Strontium both with 30-year half lives are going to have to be stored above-ground, and

will have to be removed from the spent fuel, and cannot go to the geological repository and release some of the heat bearing -- the benefits from removing heat bearing materials from the repository. However, one can only have a credible protection regime for those materials over, let's say, one generation; therefore, you're going to have to evaluate the potential for human intrusions in a facility where you cannot assume institutional control after one, or perhaps two generations; that is, let's say, 50 to 100 years, so, therefore, there has to be analysis of human intrusion impacts into a storage facility encountering Cesium and Strontium. And I guess I will stop there. That's only a small fraction of the written scoping comments that we had prepared. Thank you.

MR. BROWN: Thank you. Okay. Jim is next, and David Blee will follow.

MR. RICCIO: Good afternoon. My

name is Jim Riccio, and I'm with Greenpeace. I almost feel as though I should cede my time to Dr. Lyman. It's not going to come as a great surprise to you all that Greenpeace opposes this plan, as well. What may come as a surprise to you is that not even the Nuclear Energy Institute could support it last week at NRC's conference.

There are some major problems with the PEIS, and given that I only have five minutes, I'll only address a few of them. If you're going to be examining the environmental impact of this entire plan, I would suggest that you look at the impact of a melt-down at these reactors.

We had a nice presentation by the Department of Energy out at the Nuclear Regulatory Commission last week, and they threw up this slide here, which has a list of all the different experience that the NRC has, or that the agency and industry has with advanced reactors and fast burners.

What the slide fails to show is that you've melted down two of them. You've had sodium cooled accidents at several others, so if you're going to look at the environmental impact, I suggest you also look at the environmental impact of a core melt accident on an advanced reactor.

Now I understand this decision on GNEP to move forward is going to happen in 2008. I would suggest that you also let that date slide a little bit, because you're going to have a change of administration. And depending on -- either side is going to have major questions about this program moving forward. When not even all the nuclear industry can sidle up and say they like this idea, why did MIT call this goofy? You know, if this is such a great idea, why can't you even bring in those that are pro-nuclear?

I reviewed the testimony that had to do with a lot of this process before the

House Science Committee. Someone on that committee obviously lost their job because they couldn't find anybody, other than the Department of Energy, that liked it.

If we're going to move forward with this, let's please at least be honest about what we're dealing with. Let's not pretend it's going to save us from the flow of foreign oil, or that it's going to save us from global warming, because this program is not going to get off the ground nearly in time to address global climate change. So, in fact, this is really a make-work program, welfare, if you like, for scientists in white lab coats. And if that's where you want to toss your money, that's fine, but please let's not pretend it's going to solve climate change.

We will submit written comments on the PEIS. I hope that others will touch on other aspects, and I see that we have plenty of people in the audience who can

speak to this issue. If you have any questions, I'd be happy to answer them. We look forward to continuing this process, and hopefully keeping the Department of Energy in the right direction.

MR. BROWN: Thanks. David Blee. Is David here? Christopher Paine, and Christopher will be followed by Tom Cochran.

MR. PAINE: Hello. My name is Christopher Paine. I'm a Senior Nuclear Program Analyst with the Natural Resources Defense Council, on whose behalf I'm commenting today.

First, I'd like to note that DOE has now adopted for obvious legal reasons the form of the Environmental Impact Statement that NRDC recommended last year in its comments on the advance Notice of Intent, but it has not adopted any of the substance of our comments. DOE has, regrettably, seen fit to ignore almost all our comments. Thus, it appears that the

Department remains on a legal collision course with NRDC, and a large majority of the citizens organizations that have participated to-date in the public comment process. The scope of the PEIS as currently outlined is still so illogical and deficient that we do not believe it can form the basis of a legally adequate PEIS.

The purpose and need for agency action in the current NOI remains incoherently defined in an excessively narrow manner that's characterized by circular reasoning; that is, it supplies a unique answer to the issues at-hand, in the very act of framing the question. We are told that DOE's underlying purpose and need is to encourage expansion of domestic and international nuclear energy production, while reducing the risk associated with nuclear proliferation, and the volume of thermal output and radiotoxicity of spent fuel.

First, I'd like to note that the expansion of both domestic and international nuclear energy production may, in principle, be accomplished by a radical shift in strategy like GNEP, but also by a much less costly and less risky extension of current reactor and fuel technologies, including the substitution of relatively more efficient Thorium fuels for use in thermal reactors of conventional design.

Moreover, the national and global expansion of nuclear power via GNEP, or any other route, cannot simply be stipulated as desirable in its own right, but must rather reflect or implement some larger national purpose to its both GNEP, and its reasonable NEPA alternatives must relate. For example, the President, himself, has identified less reliance on fossil fuels as an important objective of GNEP. He's also stated his belief that nuclear power with reprocessing will "take the pressure off our own economy

by easing global demand and prices for natural gas." Well, there are lots of technologies that can accomplish both of those objectives. They are not unique to GNEP.

Alleviating proliferation concerns is also a worthy goal, but it does not necessarily require GNEP, or even the global expansion of nuclear power without GNEP. For example, numerous experts believe that a policy of conventional nuclear fuel leasing and spent fuel take-back targeted at just a few states, coupled to a program of vigorous promotion of non-nuclear energy alternatives will meet energy demand in the vast majority of developing countries, and that this would be a less risky, less environmentally harmful, and more cost-effective, and timely approach than GNEP.

Finally, we note that spending tens, and perhaps hundreds of billions of dollars merely to "encourage" expansion of

domestic and nuclear production is not a credible basis for either national policy or a programmatic EIS.

Now, the January 4th Notice of Intent contains statements that are inherently contradictory. Their general purpose appears to bolster GNEP as a plausible energy policy alternative, while also truncating the scope of the PEIS to avoid head-to-head comparisons between GNEP and a representative range of feasible alternatives.

After reading these and similar statements in the NOI, imagine our surprise on the slide today, we saw the conclusion that "The commercial marketplace will ultimately determine how to meet future increased demand for electricity, and DOE is not proposing in this PEIS that DOE would construct and operate any facilities with a primary purpose of generating electricity." That last sentence is a semantic dodge, a

silly one, at that, as the objective of the entire GNEP program, much less than any individual facility within it, is reliable, cost-effective electric power generation. Why else are we here?

The fact that these facilities may be developed and operated for DOE by private contractors at government expense cannot disguise the fact that GNEP electricity will amount to highly subsidized public power generation that will not be competitive in a commercial marketplace for decades, if ever. By indulging in such verbal chicanery, DOE appears to be avoiding an acknowledgment of GNEP's mission as a candidate of electricity generating technology; and, hence, the legally mandated comparison with a reasonable range of plausible available, safer, cheaper, and sustainable technologies that would supply electricity to the public.

NRDC strenuously objects to the

framework for analysis of alternatives as outlined in the NOI, and we are confident it will not survive judicial scrutiny. The current framework for analysis artificially segments the international from the domestic aspects of the GNEP program, even as we know that the program is premised on bringing foreign spent fuel supply, and bringing back foreign spent fuel for reprocessing and storage in U.S. facilities.

DOE cannot suddenly turn around and say that it's not proposing any specific action with regard to the international aspects of this program, when, indeed, the program itself is called the Global Nuclear Energy Partnership.

Reasonably foreseeable scales for these multilateral GNEP operations must be discussed in the PEIS, and their global and domestic environmental impacts analyzed, including the activities of other agencies that may be involved in this program, such

as the Department of State.

It is well settled an agency may not cripple a NEPA analysis of reasonable programmatic alternatives available to policy makers by arbitrarily reducing the options subjected to detailed analysis. We will submit for the written record our detailed comments on suggested options, reasonable options for analysis.

MR. BROWN: Thank you. Tom Cochran. Michael or Michelle Boyd. Before you start, let me just mention. After the initial folks who signed up have concluded their five minute statements, I believe we will have time if there are folks who would like to supplement their statements, add a few comments. I think we will have time after we've concluded those who have signed up, so just by way of information. So, Tom Cochran.

MR. COCHRAN: I'm Tom Cochran. I'm Director of the Nuclear Program at the

Natural Resources Defense Council, and I have a Ph.D. in physics and I've been following these issues for 35 years, since I wrote a book about breeder reactor program in the United States government from `72 to `74.

This program is the marriage of two failed technologies, reprocessing and fast sodium cooled or liquid metal cooled reactors. It is, in my view, uneconomical, unreliable, unsafeguardable, unworkable, and unsafe, and I ask that the PEIS discuss in some detail, a chapter each would be appropriate, each of these issues, the economics, the reliability of fast reactors, the safeguardability, the safety and the workability of the grand scheme.

Now, when Rickover pulled the fast reactor out of the Seawolf submarine before - it decided to do that before it went on the sea trials in 1956 - he said in his words, and this in the history of the

program, "These fast reactors were expensive to build, complex to operate, susceptible to prolonged shutdown as a result of even minor malfunctions, and difficult and time consuming to repair." Each of those has proven to be the case at 50 years of R&D on fast reactors in this country and abroad.

We went through this fast reactor development program previously. It was called the Breeder Reactor Program. It was a failure in the United States, in France, in Germany, in Italy, in the United Kingdom, in Russia, in Japan, in India, and in two navies, the United States Navy, and the Russian Navy. And there is a long list of fast reactor R&D facilities, about half of which did not operate reliably or were shutdown for various reasons. And there should be a discussion in the PEIS of the history of each of these facilities, including the fuel failure of Clementine, fuel melting at Fermi 1, fuel melting at

EBR-1, sodium leaks at S1G and in Sequel, steam generator problems at the PRF in the UK, the unreliability of Superphenix in France, fuel assembly failures at K and K2 in Germany, numerous problems in the Alpha class submarines, the sodium fires at the 350 and 600, the sodium leaks and fire at Monju, and the plague and the problems that have plagued the FPQ are a problem in India.

And it's not just the old reactors, it's the flagship fast reactors of these countries. Clinch River was cancelled in the U.S., PFR was cancelled in the UK, Superphenix had a reliability of about 6 or 7 percent over its 11-year operating history. The German Kalkar Reactor was shutdown and turned into a hotel and amusement park after it was largely built. The Italian reactor, PEC, was cancelled during advanced stages of construction. Monju fires shut it down in `96, and it

hasn't opened since. We need to have a thorough discussion of these failures, because this is indicative of the difficulty with this technology, and the fact that it's an unreliable technology, and GNEP requires, the architecture requires that something like every other reactor, or one-third of the reactors in the world be a fast reactor.

You have to ask why, after the globe has spent something close to a hundred billion dollars in today's dollars on fast reactor development, how many do you see are operating? BN600, and even there, the Russians don't reveal the extensive sodium fire experience they've had there at BN350. The Russian program was a failure to close the fuel cycle. They stuck us with a billion dollar a year expense in trying to secure the Plutonium left over from the failed closed fuel cycle. BN600 has never operated on Plutonium, and recycle. And even the French program, which people point

to as a success at reprocessing and reactor operations, even there they only recycle about once, because of the economics of recycle is so bad after the first recycling.

This program is unsafeguardable. You can pretend that it's better than existing reprocessing plants because the Plutonium is left mixed with something, but, in fact, reprocessing plants and other bulk handling facilities are simply unsafeguardable in non-weapon states, and the current IAEA regime is inadequate to safeguard these plants, even to prevent the diversion of small amounts of material under the nose of the IAEA, or to prevent, as in the case of North Korea, just take over, getting out of the safeguards regime, and converting the plants for weapons purposes.

MR. BROWN: You're welcome to come back after the last speaker and finish your remarks.

MR. COCHRAN: Okay.

MR. BROWN: Okay. Thanks very much. Michelle Boyd, and Nick Roth will be after Michelle.

MS. BOYD: My name is Michelle Boyd. I'm the Legislative Director for the Energy Program at Public Citizen. Public Citizen adamantly opposes the DOE's Global Nuclear Energy Partnership, or GNEP.

At its basic core, GNEP is simply a program to restart reprocessing in the United States. Reprocessing including expensive and proliferating, and it will not solve our problem of spent fuel from commercial nuclear reactors.

DOE has held 11 public meetings around the country near sites that are being proposed for a spent fuel facility. Yes, a spent fuel storage facility, which it refuses to talk to our community about, a reprocessing plant, a fast reactor, and at some sites a research facility.

I'm really alarmed by what I have heard back from those community members that have attended these meetings. DOE is telling these communities, and we heard also today that reprocessing is like recycling your newspapers, bottles, and cans. I find it appalling that DOE would compare the most polluting part of the nuclear fuel cycle to recycling of newspapers. I'd also like to know what newspapers DOE is reading, because I don't want to buy those radioactive papers.

DOE has glommed on to the word "recycling", because it has extremely positive connotations in the public's mind. It was also well-received in a focus group that DOE held on GNEP in Idaho in August of 2006. As a result, DOE changed the name of the reprocessing plant to a Nuclear Fuel Recycling Center, sounds much better. But reprocessing is simply the separation of Uranium, Plutonium, and other elements from

spent nuclear fuel.

Moreover, DOE is now calling the proposed fast reactor an advanced recycling reactor, but it will not be able to use the transuranic elements which DOE has, itself, admitted gets you virtually no benefits in reducing the radioactivity that must be put into a geologic repository.

DOE also refused to talk to communities about the spent fuel storage facility that would be required at every reprocessing site, or at the reprocessing site. DOE also failed to mention that its plans to store the most radioactive materials at the reprocessing facility for hundreds of years while they decay.

The other long-lived radioactive waste from reprocessing will be dangerous for tens of thousands of years, at best, and will require geologic storage, but with no licensed repository in the United States, the waste will remain indefinitely at the

reprocessing site. This has already happened in Morris, Illinois. Did we learn nothing from the past? Morris has now 772 tons of spent fuel. It is the largest waste dump in the country. And that fuel was transported to that site for reprocessing in a plant that never operated due to major equipment failures and technical problems.

DOE officials have repeatedly been quoted in the press saying that France, the UK, and Japan reprocess, implying that these programs have been wildly successful. But DOE has failed to mention the salient fact that these programs have been failures economically and technically. To name only a few of the problems, a French government report from 2000 concluded that reprocessing is uneconomical. France is building up huge stockpiles of separated Plutonium because France's fast reactor program has been a disaster. French utilities do not want to use the Plutonium fuel in their light water

reactors, and so the Plutonium continues to stockpile up.

The Japanese reprocessing plant, Rokkasho, which is less than half the size of the plant the U.S. would need to deal with our annual output of waste, cost $20 billion, three times more than what Japan said it would cost, and 12 years to build.

The UK government-owned reprocessing plant, which was never profitable, had an accident in 2005, which forced the plant to close down, and it may never open again. Finally, all of these programs are very heavily subsidized by their governments.

I'm going to not talk about fast reactors, because Tom did such a great job, but I just would like to mention that nothing has been developed with the technology to indicate that DOE's rush to a fast reactor at one of the 11 sites will be any more successful than the reactor that

currently is operating in Russia, that has had 15 sodium fires.

DOE's proposed scope of its Programmatic Environment Impact Statement is woefully inadequate. DOE is proposing to dramatically limit its analysis to the three facilities it's proposing today, the reprocessing plant, fast reactor, and research facility, while ignoring the question of spent fuel storage, and all of the other fast reactors that will have to be built, and all the implications behind that.

The law requires that DOE evaluate in the PEIS the full environmental impacts of all of the phases of the GNEP program, and this includes all of the facilities that the full implementation of GNEP would require, including, very importantly, the import of spent fuel.

DOE's alternative to the GNEP program is to store waste at reactor sites where it is currently located until direct

disposal of spent fuel in a geologic repository is available. On-site storage makes sense. It is vital, however, that the spent fuel be safeguarded from terrorist attack while at the reactor sites, and this must be incorporated into this alternative. Thank you.

MR. BROWN: Thank you. Nick Roth, then Laura Peterson will follow Nick.

MR. ROTH: My name is Nick Roth. I'm the Research and Advocacy Director for the Nuclear Age Peace Foundation. I, in fact, came here to speak in that capacity; however, after listening to a number of the speeches, thus far, I had to comment in another capacity.

Having listened to some of the speeches thus far, one might get the impression that the youth of America support nuclear energy, and think this is a clean, safe, and cost-effective idea. Let me be the first to say on behalf of a network that

I'm a member of, the Think Outside the Bomb Youth Network representing thousands of young adults and students around the country, many of whom have been adversely affected by the nuclear weapons complex, as well as the nuclear energy complex, that nuclear energy and GNEP is not the solution to our energy problems.

GNEP, contrary to what's been said thus far, is a dirty, dangerous, and expensive program with serious non-proliferation, environmental, and cost implications.

Firstly, I'd like to address the idea that we don't reprocess, so other countries shouldn't, being a failed strategy. Well, the idea that we're going to reprocess, so you don't have to, is equally, if not more flawed than the existing idea.

Furthermore, taking Plutonium and removing it from spent fuel, making it more

easily transportable is extremely dangerous, particularly considering recent security problems at nuclear facilities around the country. From my understanding, 5 kilograms of Plutonium could be easily removed from - after having been separated, could be easily removed from a facility, and is enough to make a Nagasaki-sized bomb.

Furthermore, reprocessing has already been tried in the United States. In West Valley, New York, reprocessing was tried and failed, and the continuing results today consist of 125 spent fuel rods remain in large concrete pools. On site streams contain sediments, contaminated with Cesium-137 and Strontium-90, 42 fuel rods in ruptured concrete casings remain buried in one trench, trenches containing buried nuclear waste are now capped with plastic Methane gas carrying radioactive Tritium continuing to be released through these caps, 15,000 drums of high-level nuclear

waste in cement remain on the site.

Furthermore, the idea that this is an inexpensive solution to the nuclear problem is also inaccurate. The National Academy of Sciences in 1996 estimated that the Global Nuclear Energy Partnership program would cost one to two hundred billion dollars, not including cleanup of the sites that would be required.

Furthermore, the Global Nuclear Energy Partnership should be reconsidered. Reprocessing is not the solution, and I support on-site storage until a storage area can be determined. Thank you.

MR. BROWN: Thank you. Laura Peterson, and Brian O'Connell will follow.

MS. PETERSON: My name is Laura Peterson. I represent Taxpayers for Common Sense, a bipartisan non-profit organization here in Washington. We appreciate this opportunity to give public comment for the National Environmental Policy Act scoping

process for the Global Nuclear Energy Partnership.

Our concerns are with the purpose, need, and cost of this project, especially in light of the checkered safety and cost history of fast reactors, and huge potential liabilities that may be incurred by the public as a result of the environmental consequences of reprocessing.

One year ago, Taxpayers for Common Sense asked Congress to cut the $250 million requested for GNEP by the Department of Energy in its fiscal year 2007 budget. We believe that spending money on any program that lacked a public and substantive cost analysis, much less when projected to run anywhere from 20 to over 200 billion, would be irresponsible.

This year, the administration has requested that taxpayers provide an additional $150 million for GNEP for a total of more than $400 million in fiscal year

2008, despite the fact that DOE has still failed to provide cost projections to either Congress or the public for the program's life span. Meanwhile, doubts about the project's safety and value are prevalent and meaningful, as ever.

This is no way to launch a major new government-sponsored initiative in an area with such a controversial and blemished past. Studies by groups no less authoritative than the National Academy of Scientists, have demonstrated that GNEP, as currently planned, is likely to waste huge amounts of money. In the United States, more than 55,000 tons of nuclear waste has already been produced, and existing reactors add about 2,000 tons of spent fuel annually.

Based on the experience of other countries, a reprocessing facility with the necessary capacity to process 2,000 tons of spent fuel per year would cost from 7.5 to 30 billion, excluding operating and

decommissioning costs. A second facility would be needed to reprocess the existing 55,000 tons of spent fuel over a period of 30 years.

The government's claim that the private sector will ultimately take over the cost of the program is unfounded, thus far. Reprocessing plants that lay fallow after being closed 30 years ago for cost overruns and safety issues have not been resuscitated by the nuclear industry, because it knows reprocessing won't bring a profit.

DOE acknowledged as much in its January 2007 Global Nuclear Energy Partnership strategic plan, which stated that, "GNEP must build facilities that have true commercial value in order to succeed." However, the report went on to assert that, "It is the responsibility of government to demonstrate for industry the feasibility of closing the fuel cycle in a time frame and manner that can achieve the GNEP vision."

We disagree. Nuclear power is a mature industry with an established market, and the accompanying incentives to develop effective and self-sustaining technologies. It should not need public subsidies, particularly while taxpayers are still paying billions of dollars each year to clean up the waste for reprocessing during the Cold War, a burden they will continue to bear for decades to come.

The DOE claims that the private sector, "Has indicated not only support for GNEP, but potential willingness to invest very substantial sums of private money", to build and operate GNEP facilities. It has yet to reveal who these companies are, and exactly how much of the fiscal burden they will shoulder.

If the experience of other countries is any indication, the burden of paying for reprocessing will fall on U.S. taxpayers, an unacceptable outcome in this

fiscal climate. For this reason, we believe the government owes taxpayers an honest and comprehensive cost analysis before asking them to support this project. Thank you.

MR. BROWN: Thank you. Okay. Brian O'Connell, and Jeffrey Sea will be next.

MR. O'CONNELL: My name is Brian O'Connell. I'm on the staff of the National Association of Regulatory Utility Commissioners, mercifully shortened to NARUC. It is comprised of state public utility commissioners. We do not represent any utility sector. Indeed, our members regulate utility business and services within their jurisdictions.

Thank you for holding these scoping meetings, and for taking the effort to develop the Programmatic EIS. The process should help provide the public with a better understanding of nuclear waste management alternatives, cost and benefits,

as well as a time line for implementation.

I hope that we can all listen at this hearing to all points of view, as Bill Casino has suggested. NARUC and state public utility commissions have had an active interest in the safe disposal and storage of spent nuclear fuel from commercial reactors since the enactment of the Nuclear Waste Policy Act of 1983. Passage of the Nuclear Waste Policy Act occurred following presidential decisions over 30 years ago that spent nuclear fuel would not be reprocessed in this country.

While times and technologies have changed, the Nuclear Waste Policy Act still sets the basic policy of disposal, and would seem to require modification if the government is going to shift to a reprocessing approach beyond the research scale. I'll summarize my comments.

The Federal Register notice for the EIS makes clear that GNEP offers the

potential for more efficient nuclear waste disposal and reprocessing under GNEP. I must emphasize does not diminish in any way the need for, or the urgency of, nuclear waste disposal program in Yucca Mountain. Yucca Mountain is still required under any fuel cycle scenario.

We suggest that the Programmatic EIS provide some estimate of the quantity of commercial spent fuel that would be suitable for reprocessing from the present 103 active reactors and shutdown plants; and (B), the range of forecasted new nuclear reactors that might be built in the decades ahead. We expect that the EIS will provide some estimates of the quantity and the radiological characteristics of waste products requiring geologic disposal.

Questions have arisen over the economics of advanced reprocessing technologies. We do not know whether the GNEP reprocessing is conditional on

substantial participation by other nations seeking GNEP fuel service, as has been described.

In short, if there are no international subscribers for GNEP fuel services, would the U.S. proceed with reprocessing of just domestic fuel? We hope the EIS will also map out a full production scale reprocessing capability that looks beyond the research phase. Will there be a business plan, for example?

And I have two specific points, and I'll expand on this in our comments for the record. Who will be responsible for packaging the spent fuel in transportation containers, and how will they be shipped? They don't simply arrive, they have to be shipped.

Number two, the advanced fuel reactors would also produce electricity during the recycling operations. Will the EIS estimate what electrical output will be,

and what plans might be to sell power to the grid? There have been some suggestions in Congress that interim storage of spent fuel be "integrated into the planning and development of GNEP recycling centers." We look for the EIS to identify the scope and operational scheme for each of the project-specific alternatives.

Since it is still apparently an open question whether GNEP facilities will be government owned or operated, or commercial, we are interested in knowing the regulatory role for the Nuclear Regulatory Commission will have in each of the alternatives.

States are also concerned over disposition of the low-level waste that may be a product of the reprocessing process. We suggest the EIS identify all categories of radioactive and hazardous waste associated with reprocessing.

Our policy position on spent

nuclear fuel reprocessing is that it is worthy of research, but even if not feasible, it does not eliminate the need for a permanent repository. We look forward to the Programmatic EIS, and will provide decision makers and the public with a better understanding of the feasibility of reprocessing spent nuclear fuel. Thank you.

MR. BROWN: Thank you. Geoffrey Sea, who will be followed by Kathleen Boutis.

MR. SEA: My name is Geoffrey Sea. I'm from Piketon, Ohio, one of the supposed candidate sites. I did testify at the hearing in Piketon, but there's a lot that remains to be said. Two of us are here, Kathleen will follow me, is also with our organization, Southern Ohio Neighbors Group. We have attracted tremendous support throughout Ohio and neighboring states, including Kentucky and West Virginia. Recently, we have support, and my comments

today reflect the views also of the Ohio Sierra Club, the Buckeye Environmental Network, and Ohio Citizen Action, with more groups signing on every day.

Ohio is in a bit of a special case. We're not like the rest of the candidate sites, because we were picked out before the GNEP process began to host a centralized spent nuclear fuel storage facility to serve the other GNEP sites. And that plan, which pre-existed, was developed by Congressman David Hobson, and our inestimable Congresswoman Jean Schmidt, among others, was done in complete subterfuge and secrecy with a misrepresentation of community support.

For that reason, the contractors at the site and the Department of Energy refused to release the application that our contractor submitted for GNEP. They refused to release that application because it contains some incriminating, and we think

prosecutable assertions, including the following. And I'm reading from a copy of the draft of the application submitted in September 2006.

"In addition to the GNEP facilities, SONIC", that's our local GNEP consortium, "also proposes, and has secured state and local community support to host interim storage of spent nuclear fuel at the Portsmouth site." Portsmouth and Piketon are used interchangeably.

Now this happened before the community was even told that this proposal existed. It happened at a time when they maintained in public statements that they had no intention of putting a spent nuclear fuel storage facility anywhere in the area, that this was all about a reprocessing plant that would bring 8,000 jobs. And it was done at a time when both candidates for governor of Ohio, of both major parties, Republican and Democrat, had already stated

in the press that they were against either reprocessing, or waste storage at Piketon.

This application for GNEP funding that came from the Ohio consortium was fraudulent. And because it was fraudulent, and represented an attempt by fraud to secure federal funds by claiming support, community and state, that did not exist, we have called upon the Department of Energy to remove Piketon from the candidate site, and to prosecute the consortium for fraud, and to demand that the money be returned.

We know that DOE has no intention of putting a reprocessing plant at Piketon. DOE intends to put the spent fuel at Piketon. Whistle blowers have been contacting us telling us that. We have testimony from them, threats have been made, people have been threatened with bodily harm if they reveal the Department of Energy's actual plans to move spent fuel to Piketon.

Under these circumstances, we cannot participate in a civilized, legalistic, technical debate about an EIS. It's absurd. This is being ramrodded through in our community, a poor Appalachian community that generally has lacked the ability even to combat DOE in any way. It's being done at Piketon to avoid the payment of cleanup funds. Piketon is awaiting decommissioning of its gaseous diffusion plant, which costs are estimated at between four and six billion dollars.

DOE has already told the community at a Chamber of Commerce luncheon that DOE doesn't have the money to clean up the gaseous diffusion plant. That money is gone. It was supposed to be set aside in a trust fund, and so DOE has threatened our community by saying that the only way we will get any jobs is to accept that those buildings instead of being decommissioned, will, instead, be turned into warehouses for

spent nuclear fuel, like it, if you don't like it, we'll pack up and leave town, and take all the jobs with us. That is what DOE has said to our community.

We are going public with it. We are demanding the cancellation of this process for the Piketon site. Thank you.

MR. BROWN: Thank you. Kathleen Boutis. She will be followed by Svend Soeyland.

MS. BOUTIS: My name is Kathleen Boutis, and I also am a representative of SONG. I live in and represent Hobson's 7th Congressional District in Ohio, and Geoffrey and I drove through the night to be here today.

I'm going to be -- currently, right now, I'm organizing central Ohio against bringing the high-level nuclear waste to our state. I'm going to be reading testimony from a significant Shawnee leader, Dark Rain, and in this testimony, you will

also hear that she singles out Representatives Hobson and Schmidt. And as Geoffrey pointed out, the reason why is because they misrepresented the support in the community, and they immediately offered up Piketon directly after President Bush's announcement of GNEP.

This is the testimony of Dark Rain Thom. "SONG is pleased to present the testimony of Claudia De Nappe Thom or Dark Rain Thom, as she is commonly known. Dark Rain is an author and spiritual leader of the Ohio Shawnee. That is the Shawnee who never left the Ohio homelands following the Treaty of Greenville in the War of 1812. She's an expert in Shawnee linguistics, and the author of "The Shawnee: Kohkumthena's Grandchildren." Perhaps the only comprehensive synthesis of the Shawnee oral traditions in the various sects and bands of the nation.

With her husband, James Alexander

Thom, she is the author of "Warrior Woman: The Exceptional Life of Nonhelemea, Shawnee Indian Woman Chief."

Dark Rain is the heir to ancestral lands in Ross County, Ohio, near the border of Pike County, less than 15 miles from the DOE reservations in Sargents, near Piketon. On those lands are burial mounds containing the remains of her ancestors. These mounds are linked across time to a continuous mound building tradition among Algonquian people of the region that goes back about 3,000 years.

In space, those mounds are linked to a whole chain of burial mounds that run the length of the lower Scioto Valley, between Portsmouth and Chillicothe along the Great Scioto Trail. Sargents is at the center of that chain. The word "Chillicothe" itself is an Algonquian word meaning "hair on the water", is a reference to the human hair that would float on the

flood tides because the river passed through so many ancient graveyards.

When the Atomic Energy Commission purchased some 3,700 acres in Sargents in 1952, the National Park Service and the Ohio Historical Society appealed to AEC to allow the survey, excavation, and removal of artifacts and remains from the property prior to construction. Those appeals were denied.

A preliminary survey of the site by OHS in 1952 identified eight sites from the Middle Woodlands period. That's approximately 100 to 450 A.D. on the edge of the AEC reservation along with one large early Woodlands conical mound, "the largest mound between Chillicothe and the Ohio River", that was threatened by AEC road construction. The southwest access road to the AEC site avoided the huge mound in 1952, but in 1979, the mound was intentionally obliterated by a crew working on contract by

the DOE.

Today, both the Department of Energy and the Nuclear Regulatory Commission deny that there is anything of archeological significance on this federal land. They also do not recognize the Ohio Shawnee as having standing, because the remnant bands of traditional Indians in Ohio never sought federal recognition.

Here's her testimony. "To the United States Department of Energy, the U.S. Nuclear Regulatory Commission, and other interested parties, I am a property owner within 15 miles of the Piketon DOE site. Title to this property has been in my family more than 160 years. I am against any and all recycling, reprocessing, waste storage, dumping, Uranium enrichment, or reopening of that facility for any purpose that will in the slightest manner degrade the environmental purity of these ancestral lands, or serve to pollute any watercourse,

creek, stream, river, or underground reservoir. The aquifer underneath the Piketon site flows northward. My property will be directly affected by all activities at the site, and it needs to be cleaned up and rehabilitated from its former use. Importing more nuclear waste, or any other radioactive or polluting materials is unthinkable.

My white ancestors have been property owners in that area since the land grant warrants and patents were issued by American officials. My Shawnee and Wyandot ancestors owned that property prior to that time. I have ancestors buried in a mound less than 15 miles from the DOE reservation. I protest the illegal arrangements by which a small number of private parties have conspired to exercise control over these public lands.

MR. BROWN: You have about a minute left, if you can summarize your

remaining, or you can submit, if you have a few remaining points, you can submit the rest of the statement.

MS. BOUTIS: Okay. I will be submitting the rest of it.

MR. BROWN: Okay.

MS. BOUTIS: But I'm going to use the rest of my time. The PEIS scoping process is designed to elicit alternatives to the proposed action. I propose an alternative. I propose that the nuclear waste be imported, stored, processed, reprocessed, recycled, burned, after burned, and otherwise transmogrified on the personal properties of the men and the women who have proposed the Piketon dump. In particular, Congress members Jean Schmidt and David Hobson have said that people in Ohio welcome this waste because we're used to handling nuclear materials in their backyards. By stating that this proposal has community support, they obviously mean that the two of

them support it, because I don't think that much of anyone else does, at least if they were told the truth about it. Since the waste would take up no more than a football field, as we were told, I'm sure that Mr. Hobson and Ms. Schmidt have more than enough available lands in their backyards.

My apologies to the other residents of my own township in Springfield, Ohio. This is where Congressman Schmidt and Hobson reside, that those two sites represented by the gun-ho leadership of Ms. Schmidt and Mr. Hobson are far more suitable, supportable, and available than any site in the lower Scioto Valley.

MR. BROWN: If you can submit the rest.

MS. BOUTIS: I'll submit the rest.

MR. BROWN: Fine. Thanks very much.

MS. BOUTIS: Thank you.

MR. BROWN: Svend Soeyland, and Ivan Oelrich will follow.

MR. SOEYLAND: Good afternoon, everybody. My name is Svend Soeyland, and I'm working for the Bellona Foundation. We are probably not very well known in the U.S., but we have done a lot of work on nuclear safety and proliferation issues in Russia, and in UK. That will be my brief and main comments in addressing this audience today.

First of all, what are U.S. missing out on when you don't have reprocessing any more going? Not much, to be honest. A few have spoken earlier on the failed attempts in France, UK, Russia, and Japan. Also, how incredibly expensive it has been, if you have literally no private involved any more. You have accidents, closures, and the rest, and you have a very small volume of reprocessing capability.

I would also add that one of the

presumptions for doing reprocessing with basically an expectation of increased prices of Uranium. This has not happened. What has happened is that basically there is ample storage of nuclear fuel facility in use, and they reprocess material both in France and Japan, it's just sitting in storage ready for any takers, like these terrorists.

So, to sum up, and if anyone of you are interested, I can provide a few reports that could document the lack of success, and the disastrous effects of reprocessing in Russia and UK. There are a few reports we can make available for you.

Lastly, when it comes to choices, we are left with a choice of status quo, or basically taking all these three rather unproven, uncommercial, and dodgy technologies that have actually -- some are going to actually prove to be unfeasible already.

What we would argue is basically that DOE, at least, should have the decency to clean up their legacy issues when it comes to reprocessing. They should also push for renewables, and spend more money on that, instead. You can get much farther in addressing the energy needs of U.S. in that way. And, thirdly, we believe that storing on-site in dry cask storage is much preferable than entering into this proven disastrous technology, which reprocessing actually is. Thank you very much.

MR. BROWN: Thank you. Ivan Oelrich, and Leonor Tomero will be next.

MR. OELRICH: I'm Ivan Oelrich from the Federation of American Scientists. I'm the Vice President and Chief of Securities Studies Programs there. The Federation of American Scientists, Federation of Atomic Scientists was founded by scientists over 60 years ago who had worked on the Manhattan Project to develop

the first atomic bomb, and they were concerned from the first days that we had reduced our reliance on nuclear weapons as a basis of our security, and worked toward their eventual elimination.

I want to focus my attention just on the question of nuclear proliferation, therefore. The Department of Energy bills the GNEP processes that they propose as proliferation-resistant. They are very careful not to say they're proliferation-proof. When you say something is proliferation-proof, you're really making an absolute statement about the danger of proliferation. But when say something is proliferation-resistant, we're really saying that's a relative term. So what is it proliferation-resistant to? When the DOE says that GNEP is going to be proliferation-resistant, they mean it's relative to the PUREX process, which was developed during the World War II Manhattan Project,

specifically for the manufacture of nuclear bombs. So saying it's proliferation-resistant, compared to PUREX, is easily the least challenging, and almost meaningless standard that has to be met.

No proposal for reprocessing is proliferation-resistant compared to what we do today, which is to leave the Plutonium locked up in dilute form in highly radioactive fuel rods. All the proposals for reprocessing that have been made, that leave the impurities in to artificially enhance the radioactive, and hence, the difficulty of stealing it, have the effect of reducing substantially the amount of material that would have to be stolen or diverted to get a critical mass worth of Plutonium. In the case of unreprocessed fuel and fuel rods, almost a ton, down to 10 kilograms or less. Plus, nothing prevents those that divert it from putting the material back into the 60-year old PUREX

process to get pure Plutonium.

Another key difference is how we account for materials, and this is often overlooked. When we leave the Plutonium in fuel rods, they're in discrete fuel rods. Each one has a serial number. We can track it. They count them by integers. When we reprocess, the first thing you do is to chop it into little pieces and dissolve in an acid. It becomes a fluid, a material. We have to pump this through pipes, and put it into tanks. We have to measure it when these measurements have inevitable errors. With thousands of tons of material going through the reprocessing facilities, it will be impossible, even in theory, to keep track of the material with high enough accuracy to make certain that critical masses of Plutonium have not been diverted, lost, or stolen.

GNEP is proliferation-resistant compared to bomb manufacture, perhaps, but

that should not fool anyone. GNEP does not reduce proliferation dangers, compared to what we do today.

MR. BROWN: Thank you. Leonor Tomero. Dr. Frank von Hippel. Dick Garwin. I know some of these folks indicated that they would be coming later, so I will be calling their names again. That brings us to an end of the folks who had signed up to speak. Let me ask if there's anybody in the audience who has not yet spoken, who would like to make a statement at this time. Anybody in that category?

Okay. I had indicated that there were some folks who had spoken previously, and who found five minutes wasn't enough to cover everything, so this is your opportunity. So okay, let me - we'll start with Tom Cochran. And I know there are a couple of other folks here, as well. Again, just in order to let everybody have a chance, I guess maybe we'll go to three-

minute rule now. Why don't we try that for now? We'll try three minutes on the second round. Yes?

MR. COCHRAN: Well, I want to touch on some issues that need to be discussed much more thoroughly in the Environmental Impact Statement. One is whether this program is really workable. In my view, it's not workable, because it's uneconomical, and the fast reactors are so unreliable, as demonstrated by about 50 years of use and research.

Today, we have 435 reactors, 103 operating in the United States, and the United States ones operate at about 90 percent capacity factor. No one in the utility energy generating business in their right mind would build a reactor that's all of the analysis suggests would cost some more, perhaps one and a half times what a light water reactor costs of 210, and whose reliability based on historical data is

closer to 50 percent than 90 percent.

The DOE pretends it's not going to subsidize, or the government is not going to subsidize this technology, but for this thing to work, somebody would have to guarantee through some insurance policies or otherwise, and subsidize the construction of these plants and their operation. So that's just on the reactor side, and again, about every other reactor would have to be a fast reactor. Which, incidentally, means every reactor from here out in the United States, the next 50 or so, ought to be fast reactors, so we should kill the 2010 program, if you really believe in GNEP, and build fast reactors. I think that's absurd that that would be the logic of it.

On the fuel side, it's clear, all the data make it abundantly clear that that once through fuel cycle is cheaper than recycling. And so there, again, not only is the capital cost higher, but the fuel cost

would be higher. These things need to be fleshed out in the EIS in some detail relying on the degree possible on the historical data. On the reprocessing plants, the three plants that operated in the United States failed, the first one, West Valley, for safety reasons, the second one, Morris, because it was built technically wrong and wouldn't work by the assessment of the General Electric Company, and Barnwell, for economic reasons. And we are fortunate in the United States that we did not pursue that technology, and it's probably good for the nuclear industry that we did not pursue that technology, both in terms of its cost and the problems that are encountered.

Reprocessing technology is environmentally the worst technology in the nuclear industry. As a result of the weapons program in the Soviet Union, it has created the most polluted spot on the

planet, bar none, which is Lake Karachai, where they dumped the waste from the series of reprocessing plants at Chelyabinsk, including RT-1, that it still operates off and on. Reprocessing has been a total failure in the Soviet Union, and in Russia. So this is hardly the team to work on a global partnership, the Department of Energy, which cannot handle the simple thing like digging a hole and putting spent fuel underground to join forces with the Russians to engage in reprocessing.

MR. BROWN: It looks like you've got items you could probably turn over to the court reporter, if you like.

MR. COCHRAN: Okay. Let me just add one thing on the safeguards.

MR. BROWN: Sure.

MR. COCHRAN: I ask that the EIS divide the safeguards issue up into two parts, and discuss separately the state threat, and the non-state threat, because

this program does not improve the situation with respect to how we do business today, with respect to either the state threat, or the non-state threat.

On the state threat issue, all you're going to do, because this thing will never see the light of day, is you're going to foster R&D programs in non-weapon states, and encourage the building of hot cells and R&D programs to engage in reprocessing R&D. And these will make the proliferation problem worse, not better.

MR. BROWN: Thanks very much. Let me just go back through the list. Is Steve Kraft still here? I think -- I notice I had -- I know Steve had a few other things to say, but I think he's probably submitted his statements for the record. Was it Edward Lyman? Is Edward Lyman still here?

DR. LYMAN: Yes.

MR. BROWN: Do you have anything to add? Okay.

DR. LYMAN: Sure.

MR. BROWN: Okay. Again, I've sometimes made the observation that some meetings end through volition, and others through attrition. And so, again, I think, while I would like everybody to add comments, because I would like everybody else to have an opportunity to complete their comments, we'll still try and stick to three-minutes on our supplemental statements.

DR. LYMAN: Sure. One other issue that needs to be addressed, and someone already raised the low-level waste disposal issue, but there is the question of the disposal of reprocessed Uranium. DOE has been evading this question, saying that it would simply be stored, perhaps Uranium enriched for use in light water reactors, or disposed of as low-level waste. But the fact is that the regulatory status of reprocessed Uranium is unclear. In fact,

from a risk-based perspective, reprocessed Uranium should be treated as greater than Class C low-level waste, because it contains isotopes, even though they're isotopes of Uranium, do qualify as long-lived alpha emitters, such as Uranium-236. And since the regulatory status of greater than Class C low-level waste is now in flux, no commercial low-level waste facility will accept it at this point.

The PEIS must include in it a discussion of how the disposal of the processed Uranium is going to be carried out with regard to re-enrichment. There's no enrichment facility in the United States that's capable of re-enriching reprocessed Uranium. The license that has been awarded to the LES facility would not permit the use of reprocessed Uranium as feed material; so, therefore, there is no defined path for this. And since it's essential when DOE goes around and talks about how they're

going to be extracting - reducing the volume of waste of spent fuel by reprocessing it, that is largely due to the removal of this reprocessed Uranium, so that is one major issue that's going to have to be addressed.

MR. BROWN: Okay. Thanks very much. Okay.

MR. PAINE: Christopher Paine with NRDC, again. I left off discussing the options that need to be included in the PEIS, reasonable alternatives. I noted it's well settled law that an agency may not cripple its NEPA analysis by arbitrarily reducing the options subject to detailed analysis, and reducing that weighing of alternatives to a stark choice between implementing the agency's preferred regime, or no action. That's unacceptable, yet this is exactly what the current NOI proposes to do.

We urge a different course. First, DOE must start from a broad, logical,

and coherent statement of the national purposes to be served by the proposed action. A statement which goes beyond the current bureaucratic categorical alternative to promote nuclear power reprocessing. Then DOE must develop a range of reasonable programmatic alternatives for achieving the underlying national objective set forth in this broad statement of purpose and need.

Since it's irrefutably the case that meeting the national goals of reduced reliance on carbon-based fuels, and strengthen non-proliferation do not necessarily require that GNEP program, or even increased reliance on nuclear power, DOE must define and analyze broad reasonable programmatic alternatives for both conventional nuclear, and non-nuclear electricity supply that would meet these national goals of reduced reliance on carbon-based fuels, and improve non-proliferation. And it must compare their

connected and cumulative environmental impacts to the impacts of implementing the GNEP proposal in the manner proposed.

Then I would say with respect to the project specific analyses, GNEP, DOE in its proposed action must define a range of reasonable alternatives for actually implementing GNEP. And those, I think, should include a true no action alternative, and involves terminating GNEP and its constituent advanced fuel cycle facility program. A current no action alternative is actually gaming the system by including a substantial GNEP-like activity in the no-action alternative.

I think DOE should look at a phased approach option that would complete long-term transmutation fuels development and testing critical to GNEP feasibility and decision making before undertaking any construction of new reprocessing or fast reactor facilities. It then should look at

a reliable nuclear fuel services option or alternative that achieves the purpose and need for agency action by fostering multilateral cooperation in the supply and disposal of conventional nuclear fuels without the added financial burdens, technical complexity, and hazards of reprocessing, and fast reactor deployments.

MR. BROWN: You can make this one more point.

MR. PAINE: Yes. And finally, it should look at -- I believe it should look at a reasonable alternative involving the Thorium fuel cycle that examines potential non-proliferation advantages, reduced repository volumes, impacts on future electricity supplies, and fuel cycle environmental impacts from employing high burn up Thorium fuel reactor cores in conventional thermal reactors.

And, finally, DOE's attempt to compact a broad programmatic analysis and

site-specific alternatives within the confines of the same process in the same document is a bridge too far, and I don't believe it will withstand legal scrutiny. Detailed site selection at this stage obviously presumes and, indeed, requires a particular set of outcomes that will serve to prejudice and pre-determine the results of the broad programmatic analysis.

We shouldn't be comparing detailed environmental analyses of siting alternatives while we are simultaneously trying to devise the components of the GNEP program. DOE is attempting to put the pork barrel laden cart before the horse of required NEPA programmatic analysis, with a transparent intent of using the former to influence the conclusions of the latter. This approach is unacceptable from a legal perspective. It violates common sense notions of objectivity, balance, and fairness, and we will do everything in our

power to resist it. Thank you.

MR. BROWN: Thank you. One of our previously absent speakers has arrived, so I will now call on David Blee.

MR. BLEE: Five minutes or fifteen minutes?

MR. BROWN: Five minutes.

MR. BLEE: Hi, I'm David Blee, Executive Director of the U.S. Transport Council. We are a group that was formed in 2002 to provide factual information on nuclear materials transportation experience and safety comprised of two dozen companies from the transportation sector, including suppliers and customers. Our principal focus is transportation, education, policy consensus, and transport community institutional issues.

I will include a list of our members for the record.

We generally welcome this initiative, given the myriad of

considerations with respect to national security, energy security, non-proliferation, economic competitiveness, and the like, clean energy, et cetera. As a group that is focused on transport, we have followed this very closely, and have responded as necessary when transportation issues have arisen during some of these town meetings.

What we do want to stipulate for the record is that with regard to any transportation consideration with respect to this program, the transportation safety and security record which also has been exemplary over nearly a 50-year period. Last year, the National Academies concluded an independent three-year study of transportation that concluded there are no fundamental technical barriers to safe transport of spent nuclear fuel in the United States, although it has not been undertaken at the scale envisioned by

programs like Yucca Mountain, or certainly in this case, GNEP.

Transportation packages play a crucial role in transportation safety by providing a robust barrier to release of radiation, radioactive material, and the current transportation regulatory paradigm is effective and works well.

As you know, transportation was heavily vetted during the Yucca Mountain ratification debate a number of years ago. There have been approximately 3,000 safe U.S. spent fuel shipments over the past three years, over nearly two million miles. There has been no release of radioactive material harmful to the public or the environment, and there are successful ongoing U.S. Navy foreign research reactor and other non-proliferation transport campaigns. Over 5,000 whip shipments, over five million safe transport miles, and internationally the equivalent 70,000 metric

tons have already been shipped, which is about the same as proposed for the Yucca Mountain program. In France and Britain internationally average 650 shipments per year, three times 175 projected for Yucca Mountain, and certainly a lot more than projected, I believe, for this program.

In short --

MR. BROWN: Excuse me. Let me -- if you folks are going to talk in the back, can you step out in the lobby, please? Okay. Thanks. Sorry to interrupt.

MR. BLEE: In short, with regard -- we consider transportation a non-factor in this program. It's achievable, it's doable, can be done safely, it can be done securely. And any level of shipments that may be required for this program will be a fraction of the 300 million hazardous shipments annually in the U.S., or roughly 1.2 million per year. So, again, we just wanted to enter that for the record, and we

stand prepared to help you.

We are working on a White Paper, which will examine the transportation dimensions of this program. There are, obviously, international, domestic aspects to that, and we hope to have that sometime after the first of the year.

MR. BROWN: Okay. Thanks very much. Okay. I think Geoffrey Sea. Do you have anything more to add?

MR. SEA: Yes, but let Kathleen go ahead of me.

MR. BROWN: Sure. Okay.

MS. BOUTIS: I'm going to read the last section of Dark Rain's testimony here. "If the high-level nuclear waste is too volative and vile for Nevada, if they can't pay Nevada enough to dump their stuff within the borders of that state, then I most assuredly do not want it dumped, or processed, or kept temporarily near my property. And if you even contemplate doing

so, I demand to made a consulting party under NEPA and the National Historical Preservation Act. And I demand the same right for every unregistered or registered American Indian in the State of Ohio, because that land in Sargents is sacred to all our people, that descents of the mound building cultures. And let's not play pretend games. We know that the DOE does not need Piketon as a production site. We know that the DOE intends to make it the central site for dumping its waste. No more kidding around and name games, using acronyms that you think will confuse every common citizen. We see straight through your acronyms. We're Indians and we're PEIS'd. Not just the air, environment, but our water is at severe risk here. We need your help to preserve our few natural resources in this hard scrabble community. Be clear, not just that land is sacred, but the waters on and under the land, and the

animals who inhabit the land and the waters. By targeting Sargents, you have targeted the heart of the Indian heritage in North America. Water that's now being touted as the new gold is being hoarded as we speak by Halliburton subsidiaries in the northern tier of this country as it comes from Canada for sale to communities shortly when potable water is scarce. Now this project wants to destroy the safety of the Scioto River and its tributaries, and nearby aquifers. I protest any and all pollution of that river, and tributaries, as well as the underground water resources. This is most urgent, the most urgent human need, and I call upon you to help preserve this irreplaceable source of life for we humans, as well as the wild life and the plants who will also be affected by any pollution or introduction of toxic additives to the groundwater.

On behalf of myself and my tribal relatives at the Ohio Shawnee, I protest and

demand this hair-brained idea be cancelled and be scrapped once and for all. No more efforts to destroy our environment in this sacred area filled with the graves and mounds of our ancestors. That land is federal land. It's public land. If the government cannot find a responsible use for it, it should be cleaned up and returned to the Indians from whom it was taken, as settlement of outstanding claims, and with profuse apology for the desecration that has been wrought there.

I am council member of the Shawnee band and have been since its inception, and on the council of its mother community more than 30 years. I'm record as giving testimony during the joint House investigating committee prior to being given state recognition in the early 1970s.

You might note, the way business has been conducted the past six years in Washington, D.C. is undergoing scrutiny, and

legal charges are flying in every venue. I am sure this mess at Piketon is a part of that chicanery. It will be uncovered and it will result in prosecution. Please protect the legacy of your own ancestors, and stop another atrocity from staining their good names. Sincerely, Claudia De Nappe Thom." Thank you.

MR. BROWN: Thank you. Okay. Geoffrey Sea.

MR. SEA: Yes, I just want to make a technical point. Under NEPA there's discussion of alternatives, and public interest groups, environmental groups have often run up against the roadblock, as they are running up against here, that the alternatives under NEPA are defined as, at least the courts have interpreted it this way, alternatives to meeting the goals of the federal project as defined by the project, or by the agency. However, there's another body of law that's applicable here,

and that body of law is the National Historic Preservation Act. And the NHPA also has a provision requiring alternatives; however, courts have interpreted the alternative section of NHPA differently than the alternatives under NEPA. And under NHPA, the alternatives are defined not as alternatives to the goals of the agency for the designated project, but alternatives to the use of the historic resources at question. So when a federal agency chooses a site like Piketon, as you've heard from Dark Rain Thom's testimony, that is chock full of historic and prehistoric resources the agency must, in that case, consider alternative uses or alternative development and protections of those resources. Okay?

Now coming from Ohio, many of you in the room are unfamiliar with what we're talking about when we talk about mound builders. This is not exactly new information. These are reprints of plates

from a book published in 1948 by Ephraim Squier and Edwin Davis called "Ancient Monuments of the Mississippi Valley." Plates of the largest earthworks in North America, which are centered in the Ohio Valley. And one of the major ones, in fact the one that first got Ephraim Squier interested in the whole subject, is this site, which I know you can't see from there, but you're all welcome to take a look at it later, an enormous circle, a circle bigger than what most of you can imagine an earthwork being, a circle that enclosed 20 acres matched with a square that enclosed 17 acres on a site that actually was much larger even than they pictured, which is in the town of Sargents, Ohio.

Abraham Lincoln read this book, became interested in this particular site because they discussed it at length, and visited it just so that he could see these earthworks. The Piketon DOE reservation is

right here on this map, less than a mile away from these earthworks. And the earthworks from this complex, only a few of which were identified in 1848, extend all over the DOE reservation.

Now DOE has a little bit of a problem. They chose Yucca Mountain, which we all know now was considered sacred to the western Shoshone. They then had an idea to store the spent fuel temporarily in Utah on the Goshute Reservation, until they were knocked out by the Department of Interior acting as a custodian for Indian lands. And the third target they picked to store spent fuel is right next to one of the most important historic earthwork sites in North America.

If they proceed with this plan, we will hold DOE accountable under NHPA. We will have every preservation group, and every Native American group in this country up in arms over this pattern of abusing

lands sacred to Native Americans. Thank you.

MR. BROWN: Thank you. Okay. Anyone else would like to speak? Yes.

MR. O'CONNELL: Brian O'Connell from NARUC. I just scribbled down a few notes, but to DOE's credit here, for a moment, they did not choose the site in Utah for storage of spent fuel. That's an entirely private venture, albeit, licensed by the federal government, but not DOE.

Just a thought for process improvement. I've been to a number of hearings, given dry testimony. The one that comes to mind is the terribly tedious review of the radiation standard for Yucca Mountain. It was 48 pages in the Federal Register, some of the most difficult reading I've ever done. Only seven people showed up at that hearing and gave testimony, and so there was an opportunity for seconds because the room had been rented for the occasion.

I suggested to the hearing officer at that time that there really needs to be some true public education, true listening, some of it took place today. I think we should all respect everyone's opinion given here, whether it conforms to your preconceived ideas or not, because it's all going to come into play sooner or later.

There is an observable pattern in the federal government called decide, announce, defend. This is a debate that should be taking place without the sense that something is going to get locked in, and that we're going to have pro and con of a site, or not a site.

I take as my local example for those who are from the area here, the question of whether the Metro is going to go to Tysons or not. Is it going to go underground, or is it going to go above ground? It's going to be played out in public debate, and sooner or later somebody

will make a judgment, but there'll be public input without the sense that you're defending Alternative A or B. So I think with as broad as the scope of this Programmatic EIS is, that there's an opportunity to truly listen and focus on the issues that are being exposed here today. Thank you.

MR. BROWN: Would anyone else like to add a comment at this time? We're scheduled to run through 5:00. I've been notified that several people who have signed up to speak will be coming in about 15 or 20 minutes. What we will do now is recess. If anybody arrives who wants to speak, or if anybody here decides they'd like to add something, please see me, and we will reconvene. But for now, we will recess until our next speakers arrive. Thank you.

(Whereupon, the proceedings went off the record at 3:51 p.m., and went back on the record at 4:20 p.m.)

MR. BROWN: And just for those who have just arrived, we're on a somewhat arbitrary I guess five-minute rule, but just for variety's sake, I think since everybody else has graciously complied with that, we'll start with the five-minute rule, and if you need more time, we can then return. So with that said, we will start, and Dr. Frank von Hippel will start in. If you can step to this, and if you have an organizational affiliation, if you can provide that, as well. Thank you.

DR. von HIPPEL: Yes. My name is Frank von Hippel. I'm a Professor of Public and International Affairs at Princeton University, and I work in the program on Science and Global Security there. I am a physicist by training. I spent 16 months as the Assistant Director for National Security in the White House Office of Science and Technology Policy during 1993-94, and I currently co-chair the International Panel

on Fissile Materials, which is experts from 15 countries who work on trying to reduce the amounts of fissile materials in the world, and the number of locations where nuclear weapon usable fissile materials can be found.

I don't know whether -- I wrote a statement. I'd like to submit it, and I have a brief summary. Well, the statement itself is pretty brief. And I want to just address the -- in the notice for the PEIS, it is claimed that GNEP would simplify the U.S. nuclear waste problem, and help end the spread of enrichment and reprocessing plants.

I think, however, that there is a substantial chance that its effects would be counterproductive on both fronts. And I'd like to explain why, and urge that the DOE explore these issues that I'm raising. So I'm going to, just in summary, going to make three points.

One is that with GNEP, the Department of Energy is in danger of repeating the United Kingdom's costly mistake in launching a reprocessing program on a massive scale in the expectation that fast neutron reactors will be built, and then not have them built. And end up with a legacy of radioactive waste, which is much more difficult to handle than the spent fuel was in the first place.

Secondly, with regard to offering fuel cycle services to other countries to discourage them from reprocessing, building reprocessing plants for themselves, I think DOE has to confront the fact that other countries would only accept this alternative, that they receive reprocessing services if the country offering those services agreed to keep the high-level waste from reprocessing. This is something that the -- well, I'll get into that, the precedent, the historical reason for

concluding that.

And third, I think the proposed policy, and this is not just -- this is the Bush administration policy, under which GNEP is partially based, is to try to limit reprocessing to the weapon states plus Japan, and, in effect, create a club, reprocessing club. This, I think, we've already seen evidence, as I'll cite, that that will not work. And, in fact, will be counterproductive, and it already has been counterproductive, that effort, in the area of trying to limit the spread of enrichment technology. So those are the three points, and I'd like to elaborate briefly on them.

First, I think there's a danger that GNEP would vastly increase the cost of U.S. radioactive waste disposal. The DOE is considering in this notice, the DOE states that it's considering building a reprocessing plant with a capacity of up to 3,000 tons of spent fuel a year. If, in

fact, such a large plant -- if a 2,000 ton spent fuel capacity plant were built, it would take 40 to 75 million kilowatt sodium cooled fast neutron reactors to fission the Plutonium and transuranic elements that would be separated at that rate to keep up with the reprocessing plant. We don't have any such -- we don't have a single fast neutron reactor operating today.

Now, in the 1970s, the DOE's predecessor agency, the U.S. Atomic Energy Commission, tried to build a single .3 million kilowatt fast neutron reactor, but because of huge cost overruns, Congress cancelled the project, so the PEIS should consider the possibility of this happening with GNEP.

Now if this happened, we've seen the results already in UK, which in the 1960s and 1970s launched a large-scale, not as large-scale as we're talking here, a civilian reprocessing operation in

anticipation of a large-scale construction of fast neutron reactors, but the fast neutron reactors were not built. The UK is now winding down its reprocessing program, but it has already accumulated 80 tons of separated Plutonium and the associated high-level waste. The estimated cost to dispose of this Plutonium and the waste has most recently been estimated as $140 billion. A 3,000 ton per year reprocessing plant operating at full capacity would take less than three years to create a legacy as large as this 40-year British program. So the issue of timing of building a reprocessing plant before the fast reactors are built really should be examined in the PEIS.

I note that if there's an argument that - I know there will be a small - a proposal to have a small fast neutron reactor built in parallel with the reprocessing plant, but that would only be able to take 1 to 2 percent of the output of

a large reprocessing plant. Also, the U.S. already has 45 tons of excess separated Plutonium that its committed to dispose of, which could fuel the largest prototype fast neutron reactor considered in the PEIS for a century or more. And if that isn't enough, the UK would be grateful to pay the U.S. to take away its 80 tons of separated Plutonium.

Let me just make the point that with regard to offering reprocessing services, France and the UK have for decades been offering reprocessing services to other countries, but they have lost virtually all their foreign customers. Japan, their largest reprocessing customer decided to reprocess all its spent fuel domestically. The reason that these countries have abandoned reprocessing is because the contracts have that high-level waste coming back. And to send the spent fuel to France and the UK, and to pay $1,000 a kilogram to

have it reprocessed, and then to have the radioactive waste back to store didn't make sense, when they can build on-site spent fuel storage for $100 a kilogram.

France and the UK also require that their foreign customers take back their separated Plutonium, which, of course, totally undercuts the non-proliferation objective claimed for GNEP, so that the DOE has to confront the fact that if the U.S. were to offer reprocessing services, and to have them be attractive to countries, we would also have to accept other countries, and keep other countries' radioactive waste. Even Russia now is, because of political opposition, is abandoning this posture. And it's hard for me to believe that the U.S. could, in fact, politically make that offer.

So then, finally, just briefly, on the point of the policy to do as I say, not as I do. I mean, we originally - for the last 30 years we've had a policy of we

don't reprocess, this is the proliferation impact, again. We don't reprocess, you don't need to either. Well, we still don't need to reprocess, but we now say that we do need to reprocess. And this idea of having a permanent club of countries which can enrich and reprocess in other countries are left outside the door, has already resulted in the area of enrichment in six countries since deciding to, in fact, build enrichment plants. And it also, in the case of reprocessing, Areva, the company which would like to sell us a reprocessing plant, has announced that since the U.S. has declared that the reprocessing plant the U.S. will build will be proliferation-resistant, then Areva can, in fact, sell its reprocessing plant to other countries, and it plans to do so. So I think the -- so this is just why it would be counterproductive. Thank you.

MR. BROWN: Thank you. Dick Garwin.

MR. GARWIN: I am Richard Garwin of the IBM Watson Research Center, IBM Fellow Americus. I give that for identification only. I'm speaking on my own behalf. I will have a few comments that bear on the waste management, socio economics, human health, accidents, terrorism aspect of the environmental issues. If I may, I will send a document I prepared on GNEP and Plutonium recycle which will support the conclusions that I will come to here.

First, socio economics, money is spent on GNEP, is not available for spending on other programs, and so we're interested, if we are going to get the benefits of GNEP, to do it as cheaply as possible, and as surely as possible. Though GNEP is totally flawed in its organization and its priorities, it wants to begin by reprocessing to the extent that GNEP is understandable, because it keeps mutating,

wants to begin by reprocessing all light water reactor fuel at the rate of maybe 3,000 metric tons a year, instead of the early proposal of 100 to 200 ton environmental scale demonstration plant.

This would produce enormous amounts of separated Plutonium that would then go into advanced burner reactors, and that's not the problem. We know perfectly well how to reprocess light water reactor fuel. It would be done according to the current concept by the same process that's used at Rokkasho. Rokkasho would be glad to share their information with you, especially if you paid them a little bit of money. So that should be delayed indefinitely, until you had a place to put that MOX or other fuel for the advanced burner reactor.

The real uncertainty in GNEP is the cost, safety, and proliferation-resistance of the advanced burner reactors. There the only thing that's agreed is that

they would be more costly than light water reactors, and you would need maybe half as many million kilowatt electric burner reactors that you have light water reactors. The industry says that this would have to be government subsidized because it couldn't make its way on its own. The more international view you take into this cycle, the more the U.S. taxpayer would have to build advanced burner reactors, and I, for one, would be unwilling to do that.

Now, what should be done is to have a competition perhaps for the development of three advanced burner reactor types, each with its own fuel form and fuel cycle, and those eventually would be down selected to a prototype, but that wouldn't happen probably for 10 years, and shouldn't happen until the advanced burner reactors are cheaper and safer than the light water reactors. We certainly don't want to decrease the safety of our nuclear power

system, I hope an expanded nuclear power system, by bringing in new fast reactors.

We should not build the test reactor. There are plenty of fast reactors available. The Russians would be glad to have us use the BN600 for testing whatever fuel forms we were considering for the advanced burner reactors, and I think the Japanese would, too, either at Monju or Joyo.

So my conclusions in regard to waste and terrorism, I visited Thorpe at Sellafield, England, and COGEMA Plant at La Hague, France, and during the reprocessing and for decades after in the case of Sellafield, much of the radioactivity, instead of being locked in spent fuel elements, has been made freely available in enormous tanks of concentrated Cesium-137 that must be actively cooled via a triply-redundant cooling system if it is not to evaporate and spit its radioactivity over

the countryside, far more radioactivity than is available even in a multi-megaton nuclear weapon.

GNEP proposes not only to separate the minor actinides and to burn them, but to separate out the 30-year half-life Strontium and Cesium, and to store them for hundreds of years above ground, one hopes not in the form of liquid. But if they're not in the form of liquid, this is the major heat output from the spent fuel, and they will have to be stored passively, for instance, in dry cask storage, so what's the point?

Proliferation-resistant reprocessing in the GNEP concept seems to be anything that the U.S. decides to do, and thus, will increase, rather than reduce proliferation hazards worldwide. If we have a proliferation resistant process, which is just like Rokkasho, then other people will be glad to provide the same process. This

is pollution. This is pollution of the English language.

I've mentioned that we should not build the test reactor, and GNEP is unresponsive and secretive. They ignore technical facts, and they provide none of their own. We're not going to make progress on GNEP unless it is more open.

We will not be the sole suppliers of the secure fuel cycle, and reprocessing if that comes to pass. We'll have to compete, and people have been offering such services for a while. However, they send back the waste products, and the Plutonium, and we propose to keep them. I don't know whether the American public would be happy to do that when there's so much resistance to storing and disposing of our own spent fuel.

Missing from the DOE program on the socio economic side is an urgent effort to determine the Uranium supply curve, the

cost per kilogram of natural Uranium, both from terrestrial resources and from ocean Uranium as a function of millions of tons of Uranium extracted. If there's no shortage of Uranium, and breeders are not economical under the current cost estimates until Uranium costs like $1,000 per kilogram, compared with the $80 per kilogram current price.

Missing also is a leadership in an initiative to permit competitive commercial mined geologic repositories any place in the world, to accept spent fuel from any source or packaged nuclear waste with repository and waste forms alike in the U.S. and abroad regulated by the IAEA. If we had that leadership, we could even build new repositories in the United States, and they would not be dry repositories like Yucca Mountain, but wet repositories like the rest of the world. There's lots of space to do that along the margins of the

country where one would go down hundreds of meters to soft water zones.

The international policy aspects of the secure fuel cycle without a commitment to reprocessing should be handled by Department of State and DOE. I asked the DOE representative this morning who at State was involved, and he didn't know, so they promised to tell me. But they said that the State actually has lead, but I don't see State traveling the world selling this program.

The other aspects of GNEP ought to be handled by the advanced fuel cycle initiative; that is, the three advanced burner reactor competition. And, frankly, one ought to ask what it takes to convert each of these burner reactors into a breeder reactor, because in recent presentations by DOE contractor personnel, the ability to convert the burner reactor into a breeder reactor was worth seven times as much as the

one mil per kilowatt hour that we pay now for direct disposal.

And, finally, I personally favor a major exploration of advanced breeder reactor and accompanying fuel form, and reprocessing of the breeder fuel, when and only when it can be responsibly shown to be safer, cheaper, and as proliferation-resistant than current U.S. power reactors. But the decision process shown thus far in GNEP is not going to get us far toward any of these goals. Thank you.

MR. BROWN: Thank you. Okay. Leonor Tomero.

MS. TOMERO: Thank you. My name is Leonor Tomero. I'm a Nuclear Non-Proliferation Policy Analyst with the Center for Arms Control and Non-Proliferation.

The Department of Energy's plan to separate nuclear weapons usable material from nuclear waste, and build at least a dozen fast reactors represents a dangerous

step backward for non-proliferation. Given that this proposal has very significant impacts for U.S. policy and international efforts to prevent the spread of weapons usable materials, the significant cost of such a program for the taxpayers, and the potential environmental impacts, it is incumbent upon the Department of Energy to consider the following in its PEIS.

First, with respect to the proliferation implications, it should consider an analysis of U.S. reprocessing on U.S. non-proliferation efforts, including U.S. diplomatic efforts to prevent the spread of Plutonium producing technology to countries that do not currently reprocess, compared to the current once through cycle.

This analysis should include the perception by and effects on non-nuclear weapon states of this U.S. new policy. It should also include an analysis of the effects of Plutonium material production,

and Plutonium material transportation, or whatever mix would be extracted from the nuclear waste on the risk of diversion by terrorist groups, compared to the once through cycle, and the transportation of nuclear waste.

The environmental implications. The PEIS should include identification and analysis of the waste streams produced as a result of reprocessing, fuel fabrication, and transmutation for fast reactors, including the amount of Cesium and Strontium extracted from the nuclear waste, the amount of low-level nuclear waste produced, amount of Krypton-85 produced, amount of Technetium produced, amount of Plutonium and actinides extracted, amount of high-level waste produced, and other waste streams, in addition to the location where these wastes will be stored.

The PEIS should also include environmental implications of building and

operating a reprocessing plant without the construction and operation of fast reactors in the event that the second phase of the plan, the construction and operation of these fast reactors does not occur.

And lastly, with respect to costs. The PEIS should include an analysis of life cycle cost of this proposal. Despite several requests to make these numbers public, DOE has failed to produce any estimate so far, besides the $280 billion estimate released in 1999, which has since been retracted.

Last point with respect to cost, a comparison of the cost with the cost of the once through cycle, and with respect -- and in comparison with the cost of dry cask storage at reactor sites. Thank you.

MR. BROWN: Thank you. Okay. We have another person who's asked to speak. Mary Olson from NIRS.

MS. OLSON: My name is Mary

Olson. I'm the Director of the Southeast Office of Nuclear Information and Resource Service, and I will deliver a brief comment from Diane Darrigo, who's the Director of the Radioactive Waste Project in the Tacoma Park Office. I'd like to clarify that NIRS is working with every single community that is on the list of GNEP impacts, plus many in-between, because we're very deeply concerned, as always, about the transportation of high-level nuclear waste. However, staff time has focused historically on West Valley, New York, and because of my office being in the southeast, we've been a bit more connected to the southeast sites.

So this comment from Diane Darrigo says that, "We speak on behalf of the New York State Citizens Environmental Coalition, the National Center for Health, Environment, and Justice, and Nuclear Information and Resource Service. We are

part of a growing collaboration of local, national, and international groups fighting for full cleanup of the West Valley nuclear site in western New York State.

The only commercial reprocessing that was ever done in the United States was done at this site, and it was a miserable failure. Both commercial and government nuclear power research and weapons fuel were reprocessed for six years at West Valley intermittently, since the site was shutdown repeatedly, leaving an enormous and imminently dangerous mess needing to be cleaned up. How on earth can DOE start promoting new reprocessing, when the waste from the first failed effort still threatens the Great Lakes water shed, and entire economies of New York and Canada, and everyone downstream.

It is well documented that the site had the highest worker exposures in the United States. It has the highest radiation

levels in water downstream. There were repeated fires, thus, there were repeated radiation releases, not only from the fire, but other mechanisms, as well. And, furthermore, high-level nuclear waste has been buried on a plateau that will erode into the Great Lakes in the next 1,200 years, so must be exhumed and isolated from the environment, because this site is not suitable for high-level waste disposition.

We oppose the Department of Energy cost-cutting measures at all of its sites for cleanup, but particularly at West Valley. We oppose efforts to declassify high-level radioactive waste that is now called waste incidental to reprocessing, or WIR. We oppose this at West Valley, and at reprocessing sites in the country, including Savannah River site in South Carolina, Idaho National Engineering Lab in Idaho, Hanford in Washington State, and also Oak Ridge National Laboratory in Tennessee.

In the 1996 draft Environmental Impact Statement on West Valley, the Department of Energy projected it would cost $5 billion, with a B, billion, to fully cleanup the reprocessing mess, and $8 billion to clean the whole site where the reprocessing and waste burial took place. This year, the Department of Energy threatens to cut the cleanup budget for West Valley by about $20 million. That money would be redirected to promote more reprocessing and making the same mistakes that were made at West Valley to other communities. We oppose this.

Before the Department of Energy even thinks about reprocessing more waste, it must clean up the mess that's still waiting. The site is contaminated with high-level radioactive waste sludge in underground tanks, dirty buildings, varied waste that is starting to leak off-site, underground leaks that are expanding, off-

site radioactivity from at least one known filter blowout during reprocessing, leading to concentrated air emission still visible with aerial detection equipment; in other words, depositions that occurred in the past. Radioactive buildings, soil, waste in tanks, waste in holes and trenches, Strontium-90 leaks, Plutonium leaks, Plutonium migration still plague the site, and the Department of Energy is resisting its federal mandate to clean it up fully.

Furthermore, the State of New York has had to pay 10 percent of the cost so far. We call on the Department of Energy to clean up the first recycling "reprocessing mess" before it even thinks about new messes. And that, again, is from Nuclear Information Resource Service, Citizens Environmental Coalition, and Center for Health, Environment, and Justice.

There have been meetings in the southeast. I'm very glad to be here today.

Who am I speaking to? Are you the receiver of the comments?

MR. BLACK: Yes. Richard Black.

MS. OLSON: Richard Black. I'm sorry, I was late. In our region, we see the first move of this process loud and clear, which is moving irradiated fuel from where it is today on the liability sheets of the corporations that made it, onto the taxpayers balance sheet, and into our neighborhood. And I am here to say that the people of the southeast that I work with on a daily basis are saying hell, no. We're not going to just say this as a nice little pretty conversation. This is Yucca Mountain coming our way, and we don't want it. So the rest of the conversation really picks up, as hypothetical. The first move is the move of the waste, so we will be putting in detailed comments on what we think the PEIS should include, but first and foremost, it should include what was called system

architecture when it was applied to Yucca Mountain, which is cradle to grave analysis of irradiated fuel. And that includes the transportation, and the impacts on the communities need to be included.

And I'll just let you in on the fact that we have used TRAGIS to generate new maps assuming that the waste would go to Yucca Mountain, not Yucca Mountain - excuse me. Assuming that the waste would go from reactor sites to the Savannah River site, which is only one of the 11, but since Barnwell is right next door, it's effectively two out of the 11. And I think it's really important that that level of detail be looked at for all 11 sites. And if the waste is to be moved, that all the communities that would be impacted between where it is now, and where it would go supposedly for a temporary interim time, would be included in this analysis.

Having said that, we then have to

look at the assumption that the rest happens, so that there's the transport from the temporary staging site, supposedly, to a reprocessing site, and then from there to a disposal site. And I want to say again, we have to look at the ways in which this policy will be a shift from our current policy. The Nuclear Waste Policy Act, as flawed as it is, has checks and balances in it to ensure that any community that would take the waste on a "temporary" basis, would not become the permanent site. GNEP, as it is scoped to-date does not include any check or any balance, so our communities are viewing this as a potential shift of the waste with absolutely no follow-through guaranteed.

Now when it comes to talking about the follow-through, I personally think it's good that we're talking about a Programmatic EIS. It would have been a big mistake to just simply do an EIS that was

not programmatic, but I don't think we're on the right page yet. There's also a Programmatic Environment Impact Statement running concurrently on what we call Bombplex 2030. And many of the same communities are impacted. And guess what, the key player is the same key player, and what does that mean here? Well, GNEP is all about Plutonium, and so is Bombplex 2030. How and why under the National Environmental Policy Act is the federal government truncating Plutonium from Plutonium. And really, you can't just talk about Plutonium in isolation, you have to take up all the issues that were just raised by Ms. Tomero. You have to look at the entire stream of radionuclides, in which case we use the technical term "source term", the total amount of radioactivity, how long it will last. And we really need to look at that, because the only prospective reason for the shift in policy that is being promoted under

GNEP is the building of new nuclear power reactors, whether they are new light water reactors currently proposed by the nuclear utilities, or whether they are the supposed advanced, whatever you call it, the breeders. So we're talking about making more source term as the goal of this program, and that needs to be brought out, laid on the table, and talked about as the fundamental reason for this activity. And we have to do cradle to grave on that.

Okay. I'm going to say the rest of my comments are primarily going to be in a written, but I want to point out that when you go to looking at entire source term, and looking at Plutonium, you have to bring in the surplus Plutonium disposition program. And you have to start asking which Plutonium goes where, why, under what jurisdiction, what authority, and what is the total big picture here, because I think, ultimately, we have to talk about the United States

government's plans to weaponize near space, and how much Plutonium that would take. And I suspect we're getting into the category of needing all of it for weapons purposes.

So what are we really talking about here? So when we go to a cost benefit, as my final comment, there's a very nice event coming up on March 27th that I actually really hope the Department of Energy people go to, because you all are thinking about nuclear energy only, and on March 27th, EESI is holding a briefing on distributed generation. Distributed generation in the United States alone could triple the amount that we could do with the energy we have, if we did combine heat and power, and local production of power instead of centralized sites, like nuclear reactors will always be, we could have an economy three times the size we have today on the power we have today, if it was distributed.

So when we do a cost benefit analysis on

GNEP, you better consider those alternatives. You better look at what the real investment of $14 billion of taxpayer money into solar could do for the true cost of doing the only acceptable nuclear program to the people of the region I live in, which is the one that is now going 4.3 million miles away from the sun, so go for the sun. We'll be on your side. We'd love to work together, but try and bring us Yucca Mountain, we are going to be out there saying no.

MR. BROWN: Thank you. That was our last speaker who signed up. Does anyone else have anything to add? Okay.

DR. von HIPPEL: Is it possible to ask a question?

MR. BROWN: Well, I guess you weren't here for the --

DR. von HIPPEL: Oh, I'm sorry.

MR. BROWN: I think you can --

MR. BLACK: Is it a process

question, or another question?

DR. von HIPPEL: Process question.

MR. BLACK: A process question is okay.

MR. BROWN: Okay. All right. For the court reporter's sake, I guess.

DR. von HIPPEL: I was just looking at the time line. We're in March now, and I guess your process, this part of the process will go to April, into April, I gather. But then you already have a draft PEIS, you apparently expect to produce it in the summer. That strikes me as a remarkably short time to do all the things that you're being asked to do. And I don't know what the normal time is for a major program. I mean, look historically, for example. I'm aware of the generic Environmental Impact Statement of mixed oxide fuel in the 70s, and on the Programmatic Environment Impact Statement on the liquid metal fast reactor,

breeder reactor, which, of course, is only part of what's being proposed here. And I had the impression that those -- producing those PEIS took a matter of years, not months, and so I just don't -- I was just dumbfounded when I see that.

MR. BROWN: Well, why don't we take that as a comment. People have raised that issue before about the scheduling, so we'll just that as comment.

Okay. Again, if there's no further comment at this time, we are near closing, but I'll simply recess at this point, and I want to thank everybody for making their comments, and check the schedule. And, again, we will be in recess.

We're within four minutes, I think, of closing, so nobody else? Right. Okay. All right. Just so you folks can come to closure, I know that's really of significance, so we will say that this

meeting is officially adjourned. Thanks very much.

(Whereupon, the proceedings went off the record at 3:58:38 p.m.)